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Volume I

EXPLANATORY NOTES  
for  
DEPARTMENT OF AGRICULTURE  
Fiscal Year  
1955  
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## OFFICE OF THE SECRETARY

### Purpose Statement

The Department of Agriculture was established as an executive department by the Act of May 15, 1862. The Secretary of Agriculture, assisted by the Under Secretary, the Assistant Secretary, and members of his immediate staff, directs the work of the Department, formulates and develops policy, integrates the several programs of the Department, maintains departmental relationships with agricultural organizations and others in the development of farm programs, coordinates Department programs in the several river basins, renders administrative decisions in regulatory proceedings pertinent to Department programs, and maintains close liaison with members of Congress on all matters pertaining to legislation and policy in order to insure adequate performance of the agriculture programs.

The following offices assist the Secretary and his immediate staff in the discharge of specific departmental functions:

The OFFICE OF PERSONNEL, was established April 7, 1925, as the Office of Personnel and Business Administration. On June 1, 1934, this Office was divided into three parts, one of which was given the title "Office of Personnel."

The Office of Personnel serves as a staff agency of the Secretary, having responsibility for the personnel management program of the Department. This involves the developing of personnel policy for the Department and the interpreting and executing of the intents and policies expressed in over 200 laws, various executive orders, and the rules, regulations, policies and decisions of the several agencies of the Government in the field of personnel management. In order to accomplish its objective, the Office emphasizes the greatest possible delegations of appointment, classification, disciplinary and other authority, and operates on the basis that personnel management responsibilities are a substantial part of the managerial functions that affect every executive from the chief administrative officials to the supervisors of the smallest units. Policy and basic procedures developed by the Office of Personnel are carried out through agency personnel offices.

The OFFICE OF BUDGET AND FINANCE was established by order of the Secretary on June 1, 1934. It serves as a staff agency of the Secretary in carrying out departmental functions relating to overall administration of the budgetary, procurement, and fiscal affairs of the Department. It has responsibility for providing leadership and coordination of these activities throughout the Department, including the acquisition and distribution of funds; accounting; auditing; budgetary and financial reporting; budget, fiscal, and procurement organization and management; purchasing, warehousing, utilization and disposal of administrative and operating supplies and equipment; and related activities. It coordinates in the field the activities of Area Agricultural Equipment Committees to insure maximum effective utilization of administrative supplies and equipment owned and procured by the Department.

The Office also has responsibility for formulating and promulgating departmental policies and procedures relating to the above functions, including the review and evaluation of program and legislative proposals for budgetary, financial, and related implications, and, in cooperation with staff and program agencies, for obtaining improvements in the management and operation of work programs administered by the Department. The Office acts as Department liaison on all such matters with the Bureau of the Budget, General Services Administration, General Accounting Office, Treasury Department, and others. It also provides liaison with Congressional Committees on Appropriations and with the House Committee on Agriculture.

The OFFICE OF PLANT AND OPERATIONS was established by Secretarial order March 1, 1939. The Office of Plant and Operations exercises general direction of the housing of the Department's activities, including technical services incident to the design and approval of construction projects related thereto, contractual authority as it pertains to the leasing of commercial space and all matters concerned with the disposition of surplus real property; exercises general responsibility for the planning and development of the records management programs of the Department; provides certain technical and engineering advisory services pertaining to the acquisition, utilization, and maintenance of automotive, heavy, scientific, and photographic and other reproduction equipment; exercises general coordination of automotive repair shop, equipment depot, and cartographic, photogrammetric and photographic laboratory activities in order to derive the most effective use of these facilities, and plans or reviews proposals for the establishment of such Departmental facilities; and technical operations in connection with mapping projects, including approval of aerial photographic survey projects, and all planimetric, topographic, cadastral, and mosaic mapping projects in excess of sixty square miles.

The Office also operates certain Departmental services in the District of Columbia, including telephone, telegraph, photographic, duplicating, addressing and mailing, central storage and distribution of supplies and forms, motor transport and service garage, and the Departmental post office.

The Office of Plant and Operations serves as Department liaison with other Government agencies on matters pertaining to its functions.

The OFFICE OF HEARING EXAMINERS, established by the Secretary December 9, 1946, to carry out the provisions of the Administrative Procedure Act relating to the holding of hearings (5 U.S.C. 1006, 1010). The hearing examiners hold quasi-legislative hearings upon request of the administrative agencies of the Department and quasi-judicial hearings on disciplinary complaints filed by the Department against individuals and on petitions filed by private parties asking relief from some action of the Department or its agencies.



In general, the examiners make reports, recommend decisions, and perform such related duties as are required by the Administrative Procedure Act and statutory provisions, regulations, and rules of practice applicable to their work.

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On November 30, 1949, employment in the staff offices comprising the Office of the Secretary consisted of 596 employees, 586 of whom were in Washington and 10 in the field.

	Estimated, <u>1950</u>	Budget estimate, <u>1951</u>
Direct appropriation .....	\$2,181,100	\$2,269,000



(a) Salaries and Expenses

Appropriation Act, 1950 .....	\$2,143,300
Anticipated pay adjustment supplemental, 1950 .....	37,800
Transfers, 1950, from other appropriations (as shown in detail on next page) .....	126,035
Base for 1951 .....	2,307,135
Budget Estimate, 1951:	
Direct appropriation .....	\$2,269,000
Transfers, 1951 from other appropriations (as shown in detail on next page) .....	133,680
Total available, 1951 .....	2,402,680
Increase .....	+95,545

SUMMARY OF INCREASES, 1951:

For administrative direction in the immediate Office of the Secretary .....	+15,000
For Departmental program coordination in the Columbia Basin area .....	+20,000
For providing more effective assistance to agencies in the development and maintenance of improved budget and fiscal procedures and practices .....	+15,400
For more adequately staffing the Department's records administration and space management programs .....	+12,972
For strengthening the work of the Office of Hearing Examiners .....	+11,955
For placing on a full-year basis in 1951, pay adjustments under P. L. 359 and P. L. 429 which were in effect for only a part of the fiscal year 1950 .....	+20,218

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950 (esti- mated)	Increases		1951 (esti- mated)
			P. L. 359: and 429 adjust- ments	Other	
1. General administration .	\$482,552:	\$515,095:	+\$7,431:	+\$35,000(1):	\$557,526
2. Personnel administration and service .....	602,349:	571,184:	+3,272:	- -	574,456
3. Budgetary and financial administration and service .....	675,805:	705,490:	+4,763:	+15,400(2):	725,653
4. General operations .....	452,691:	457,669:	+4,472:	+12,972(3):	475,113
5. Office of hearing examiners .....	56,586:	57,697:	+280:	+11,955(4):	69,932

(Continued on next page)

Project .....	1949	1950 (esti- mated)	Increases		1951 (esti- mated)
			P. L. 359: and 429 adjust- ments	Other	
Total pay adjustment costs:					
Public Law 429 .....	[- -]	[40,800]	[+14,973]	[+484]	[56,257]
Public Law 359 .....	[- -]	[13,755]	[-+5,245]	[- -]	[19,000]
Unobligated balance .....	21,410	- -	- -	- -	- -
Total available .....	2,291,393	2,307,135	(5)+20,218	+75,327	2,402,680
Transfers in 1950 estimates:					
from "Printing and binding, Department of Agricul- ture" .....	-44,863	- -	- -	- -	- -
Transferred from:					
"Administrative expenses, Commodity Credit Corpora- tion, Department of Agri- culture" .....	-84,071	-86,780	-1,200	- -	-87,980
"Flood control, Department of Agriculture" .....	-11,484	-25,500	-200	-20,000	-45,700
"Salaries and expenses, Agricultural Adjustment Administration" (1950 part: year pay adjustments of the Secretary, Under Secretary and Assistant Secretary, transferred pursuant to P. L. 359, the executive pay act, for which \$19,000 has been in- cluded, on a full year basis, in the appropria- tion for 1951)	- -	-13,755	- -	+13,755	- -
Transferred to:					
"Salaries and expenses, Office of Information, Department of Agriculture"	+25	- -	- -	- -	- -
Anticipated pay act supple- mental .....	- -	-37,800	+37,800	- -	- -
Total appropriation or estimate .....	2,151,000	2,143,300	+56,618	+69,082	2,269,000



## INCREASES AND DECREASES

The net increase of \$95,545 in this item for 1951 is composed of the following:

(1) General Administration - An increase of \$35,000 under Project 1, composed of:

(a) Increase of \$15,000 for administrative direction in the immediate Office of the Secretary.

Need for Increase. The services of an additional assistant to the Secretary are urgently needed to relieve the Secretary, the Under Secretary, and the Assistant Secretary of day-to-day problems in order that these officials may concentrate their attention upon major agricultural problems of national and international scope. The present staff is not adequate to meet the Secretary's responsibility for the discharge of the many special assignments which can properly be handled only in the Office of the Secretary. The new assistant, working with agency heads and officials of the Department, as well as with officials of other branches of the Government and interested citizens, would relieve the Secretary of many details of problems of lesser importance to which he would otherwise be obliged to give his personal attention.

(b) Increase of \$20,000 in the transfer from "Flood Control" for coordination and supervision of the preparation of an agricultural program for the Columbia Basin area.

Need for Increase. The Department of Agriculture, the agency responsible for Federal agricultural considerations, proposes to develop, in cooperation with other Federal and State agencies, an agricultural program for the Columbia Basin Area.

A small staff will be required to assist the Department Field Representative in the Area in coordinating and directing the work of a task force composed of representatives of Department of Agriculture agencies and cooperating State agencies engaged in developing the Basin Agricultural Program. More detailed justification for this increased transfer is included under the item for "Flood Control."

(2) Budgetary and financial administration and service - An increase of \$15,400 under Project 3, composed of:

(a) An increase of \$5,400 to enable the Office of Budget and Finance to more effectively meet its responsibilities relating to the development and maintenance of adequate accounting systems and procedures as provided in the joint General Accounting Office, Budget Bureau, and Treasury Department program for improving governmental accounting.

Need for Increase. In the past year the General Accounting Office, in cooperation with the Bureau of the Budget and the Treasury Department, has given considerable attention to improving accounting standards and procedures. The joint program contemplates active participation and

cooperation by the various departments and independent establishments. The Office of Budget and Finance must provide the primary leadership for carrying forward this plan in the Department of Agriculture. The Department has long recognized the need for an accounting systems staff for the purpose of designing and assisting in the installation and maintenance of accounting systems and procedures which will be most helpful to administrators in the planning and direction of program operations. The General Accounting Office in prescribing systems in terms of broad patterns of accounts, provides for needed flexibility in internal accounting procedures to adapt the systems to meet varying circumstances inherent in the wide diversity of programs administered by the Department. Under this concept it becomes more directly than in the past the responsibility of each department to develop the accounting systems and techniques which will give full effect to such basic requirements and at the same time adequately meet the operating and management needs of each agency and program.

In consideration of the importance of adequately implementing the program, every effort is being made to assign present staff to the task. On the basis of recent studies, it appears that perhaps a maximum of three of the four persons needed to handle this work can be provided by the modification, and in some cases the elimination, of certain existing accounting operations. However, to provide an adequate and qualified staff to effectively implement this work an additional systems accountant is required.

(b) Increase of \$10,000 to strengthen the budget review staff, thus permitting a more effective examination of agency budget estimates, and for further studies looking toward improvements in budgetary administration in the Department.

Need for Increase. A principal responsibility of the Office is to prepare, present, and administer the annual Department budget and to work continually for the improvement and refinement of the related policies and procedures. Many new requirements of budget preparation and reporting, in the past few years have so greatly increased the work of the Office that it can no longer be adequately handled with existing resources and staff.

Each new requirement necessitates developmental work incident to its interpretation and clarification, and the issuance of necessary implementing policy and procedural instructions to the agencies of the Department. It also requires the furnishing of subsequent advisory and coordinating assistance to assure adequacy and uniformity of final presentation. These duties, added to the continuing developmental functions for which the Office is responsible, have in the absence of sufficient personnel, necessitated the postponement of such important projects as the completion of the Department's Administrative Regulations covering budgetary administration, and further studies looking toward improvements in budget methods and procedures.



The Office has had to take on this additional work without increase in staff, with the result that at present absolute minimum requirements of budget formulation and administration can be performed only by resort to excessive overtime.

(3) General operations - An increase of \$12,972 under Project 4, composed of:

(a) Increase of \$6,986 for more effectively staffing the Department's space management program and activities.

Need for Increase. The services of one additional engineer are urgently needed in the Real Estate Division to assist in meeting the day-to-day problems of housing the operating plant of the Department of Agriculture and related matters. The Real Estate Division serves primarily in a staff capacity in its relationship to the agencies which make up the Department, and to the Public Buildings Service of the General Services Administration with respect to Departmental needs. In order to meet these needs, seven technical positions are required to handle this work. With present funds it is possible to employ only five space engineers, which is not adequate to handle the work load.

The Department occupies more than 1,500,000 square feet of space in the District of Columbia to house the Washington offices of its several agencies. In maintaining proper space utilization, local operating problems are constantly developing. In addition, better than 9,000,000 square feet of space are occupied by the Department's agencies throughout the country. Although authority for action is delegated to the agencies and thereby decentralized, staff administrative and technical assistance and direction are required in handling housing problems of the various agencies in the field. The excellent working relationships which have been developed with the Public Buildings Service and the small staff of this Office have served to eliminate the possibility of duplication of the work of that agency or the agencies of the Department, who likewise have limited skilled facilities for dealing with space problems. Five space engineers to generally administer more than 10,000,000 square feet of space and related problems is proving too inadequate a staff to meet the responsibilities of the Real Estate Division.

(b) \$5,986 for strengthening and accelerating the Department's records management and disposition programs.

Need for increase. The records administration program of the Department, which started in a small way in 1939 and received considerable impetus under Executive Order 9784 has made progress each year, but the advance is not commensurate with the problem. While records have been accumulating for many, many years, the records program has been in effect only approximately ten years. In order to maintain a staff adequate to administer effectively the Departmental program, nine technicians skilled in the field of records administration are required. The number of

personnel actually hired has fluctuated considerably, based on the ability to finance this phase of the general operations program. At present only six records administration technicians are employed, including the Chief of the Division, to carry on the records program in a staff capacity for the Department.

As a result of a survey initiated by the Archivist of the United States approximately a year ago, this department reported 1,076,000 linear feet of records in its custody, and it is estimated that the accretion rate is approximately 175,000 linear feet of records annually. When this volume of records is considered, it becomes evident that good records management practices, including records disposition, are essential to economical operations in this field.

There is an urgent need for one additional records management technician to help in the administration of this program.

(4) Office of Hearing examiners - An increase of \$11,955 to strengthen the staff of hearing examiners and to provide for other expenses necessary in connection with the holding of hearings.

Need for Increase. The Office of Hearing Examiners holds hearings only in proceedings instituted by or against agencies of the Department. Consequently, the number and place of hearings to be held is beyond the control of the office. The major part of the hearings has been in connection with marketing agreements and orders under the Agricultural Marketing Agreement Act of 1937. During the past year 4 new orders have been put into effect making a total of 55 effective orders. Hearings have been held on 4 other proposed orders which have not yet become effective. In 1949, Congress authorized agreements and orders on two additional commodities, and hearings are being arranged on those commodities. An increase in orders brings a corresponding increase in amendment hearings and hearings on petitions for relief under such orders. 47 hearings on proposed orders or amendments to orders were held in 1949, a number of which required two or three sessions at widely separated points.

The number of petitions for relief pending under the Agricultural Marketing Agreement Act and the Anti-Hog cholera Serum and Hog-Cholera Virus Act increased during 1949. On July 1, 1948, 35 such petitions were pending. Hearings were held or reports issued on 16 petitions, and on July 1, 1949, 42 petitions were pending.

Petitioners for relief under the orders are entitled to prompt hearings which, with the present number of hearing examiners, has not always been possible. Because the hearings are held in the field, any increase in their number means an increase in travel expenses. The work in connection with the other acts under which hearings are held by this office is also increasing. On July 1, 1948, 5 complaints under the Packers and Stockyards Act were pending. Hearings were held or reports issued on 10 complaints during 1949, and on July 1, 1949, 16 complaints were still pending.



Under the Perishable Agricultural Commodities Act, 2 complaints were pending on July 1, 1948, 4 oral hearings or reports were issued during 1949, and 4 complaints were pending on July 1, 1949. One hearing was held in Puerto Rico under the Sugar Act. It is expected that a greater number of hearings will be required in the future under these acts.

The increase is requested to provide another examiner in order that the hearings requested by the administrative agencies and by persons subject to the laws and regulations administered by the Department may be held promptly, and to provide for other expenses necessary in connection with such hearings.

(5) Increase of \$20,218 to place on a full-year basis in 1951 pay adjustments under P. L. 359 and P. L. 429, which were in effect for only a part of the fiscal year 1950.

#### CHANGE IN LANGUAGE

The estimates include proposed change in the language of this item as follows (deleted matter enclosed in brackets):

\* \* \* Provided, however, That if the total amounts of such appropriations or authorizations for the current fiscal year shall at any time exceed or fall below the amounts estimated, respectively, therefor in the Budget for such year, the amounts transferred or to be transferred therefrom to this appropriation shall be increased or decreased in such amounts as the [Director of the] Bureau of the Budget, after a hearing thereon with representatives of the Department, shall determine are appropriate to the requirements as changed by such reductions or increases in such appropriations or authorizations: \* \* \*

The change in language deletes the words "Director of the" for the sole purpose of simplifying and shortening the wording of the item. This change will in no way affect the administrative control or authority delegated to the Director of the Bureau of the Budget.



## WORK UNDER THIS APPROPRIATION

This appropriation provides funds for the salaries and general expenses of the immediate offices of the Secretary of Agriculture, Under Secretary, and Assistant Secretary, together with their respective staffs, as well as for the departmental offices of Personnel, Budget and Finance, Plant and Operations, and Hearing Examiners. Following are brief summaries of the work currently performed under each of the projects financed from this appropriation:

### (1) General Administration.

This project covers the immediate Office of the Secretary, the Under Secretary, the Assistant Secretary and necessary staff. The Secretary, Under Secretary, and Assistant Secretary direct the Department, formulate agricultural policies to produce balance in the national economy, and to conform Department activities to legislative policies established by the Congress. Current changes in national and international demand for agricultural products, coupled with revolutionary changes in production and marketing technology demand constant analysis of Department programs to assure proper adjustment of supply, demand, and price relationships. The Secretary and his aides maintain contact with the Congress and other Departments and agencies in order to integrate Department action with national policies.

Program adjustments devised for the long range welfare of American agriculture affect international welfare and national foreign policy. The correlation of Governmental with Departmental plans and activities is a primary responsibility of the Secretary and his immediate staff. Secretarial Officers actively cooperate in programs of the Food and Agriculture Organization and other international organizations. The Department has important responsibilities in connection with the administration of the Combined British-U.S. zones in Germany and the Economic Cooperation Administration. In Mexico, progress is being made in control of foot-and-mouth disease, but the program is expected to require close supervision by the Office of the Secretary throughout fiscal year 1951.

In addition, the direction of the continuing operations of the Department requires regular review and coordination of its broad programs of research, use and protection of natural agricultural resources, education and information on techniques of production and marketing, price support operations, crop insurance, disease and insect eradication and numerous service and regulatory activities. The new housing and disaster loan programs will receive especial attention during fiscal year 1951.

The Office of the Secretary and staff are responsible for development of criteria and policy for, and coordination of, a comprehensive agricultural resources program. Attention is being focused on the formulation of plans for comprehensive multi-purpose, land-use and conservation programs in major river basins and on coordination of the work connected with increased activity under the Flood Control Program.

The Secretary's Office furnishes leadership for a Department program of Management Improvement in organization and procedure. Increased emphasis is being given to studies that will bring economies of operation and the most efficient assignment of functions at all levels of organization.

(2) Personnel Administration and Service.

Current Functions and Responsibilities: The Office of Personnel, under the supervision of the Director of Personnel, functions as a staff office of the Secretary for the general direction, coordination, and administration of the Personnel Management Program of the Department, including:

1. Policies and Procedures: Personnel policies and procedures are designed to aid program officials in making the most effective use of all employees in the Department. This involves:

- (a) Carrying out the expressed personnel policies of Congress, the President, Budget Bureau, Civil Service Commission, Employee Compensation Bureau, and other Federal agencies.
- (b) Delegation of authority to bureaus to enable completion of personnel actions with a minimum of review and maximum economy in operations.
- (c) Issuance of written instructions to bureaus concerning regulatory and administrative policy and procedures.
- (d) Development and administration of standards and uniform practices for all phases of personnel management.

2. Classification, Salary Administration, and Classification Specifications:

- (a) Supervises allocation of all positions in the Department; and determines methods of compensation for positions outside the Classification Act of 1949.



- (b) Develops policies with respect to hours of duty for employees.
- (c) Instructs agencies in rating efficiency of employees.
- (d) Develops classification specifications for positions peculiar to the Department, and cooperates with the Civil Service Commission in drafting specifications for positions common throughout the Federal service.

3. Personnel Relations and Welfare:

- (a) Examines employee grievance appeals and recommends solutions.
- (b) Administers Department's efficiency rating appeals procedure.
- (c) Advises officials and employees on employee adjustment.
- (d) Serves as liaison with organized groups, such as labor unions, welfare associations, veteran's organizations, community, and similar groups.

4. Safety:

- (a) Conducts analyses of causes of serious and fatal accidents and recommends preventative measures.
- (b) Recommends safety equipment for use in the Department.
- (c) Maintains a system of accident record reporting.
- (d) Conducts safety, sanitary, fire and equipment inspections.

5. Training:

- (a) Supervises training policies, objectives and procedures in specific types of clerical, administrative, supervisory, scientific and technical jobs.
- (b) Advises in initiating, revising, and reorganizing bureau training programs to maintain a high morale and to increase job efficiency.

6. Employment, Recruitment, Placement, Examination, Separation, and Retirement:

- (a) Supervises the recruitment, placement, transfer, promotion, leave, retirement, and separation phases of the personnel management program.

- (b) Develops qualification and examination standards for positions.
- (c) Conducts systematic reviews of delegated employment authority for compliance with legal, policy and regulatory requirements.
- (d) Coordinates the compilation of Departmental personnel statistics.

7. Organization and Personnel Management:

- (a) Develops improved personnel procedures and organization patterns, reviews organization changes, surveys, and investigates Department's organization to improve structure, lines of authority and responsibility, flow of work and work-load distribution to promote more effective use of personnel.
- (b) Initiates the preparation of policy, regulatory and administrative personnel instructions and maintains control records on delegated authorities.
- (c) Administers the Department's Honor Awards Program and the Cash Awards Program.

8. Investigations:

- (a) Investigates alleged violations of laws applicable to the Department or violations of Department regulations.
- (b) Investigates alleged mismanagement and misconduct of personnel within the Department and its instrumentalities.
- (c) Establishes standards to be followed by bureaus of the Department in conducting disciplinary investigations and in determining the action to be taken as a result thereof.

9. Employee Health:

- (a) Supervises the health service facilities of the Department.
- (b) Provides treatment of on-the-job illnesses requiring emergency attention.
- (c) Assists in the conduct of employee health education.

- (d) Advises with employees on health matters and instructs employees injured in line of duty regarding compensation rights, report requirements and procedures.
- (e) Conducts health examinations as necessary.

The work of the Office is performed through seven functional divisions. Each division is responsible to the Director for the efficient carrying out of the functions and responsibilities in its particular field of work.

Examples of recent developments:

Personnel policies and procedures were adjusted to meet the requirements of new laws, executive orders, rules and regulations of the Civil Service Commission, Bureau of the Budget Circulars and other regulatory directives, as well as Comptroller General Decisions. The following are some examples involving special significance in their personnel phases with which the Office has had to be concerned recently:

1. Public Law 206, 81st Congress: Authorizes payment of overtime to employees of the Bureau of Animal Industry for overtime duty performed at establishments which prepare virus, serum, or toxin.
2. Public Law 268, 81st Congress: Amends Federal Crop Insurance Act by reducing compensation limitation of members of Board of Directors from \$100 to \$50 a day; authorizes the appointment and compensation of personnel paid by the hour, day, or month and county crop insurance committeemen without regard to the civil service laws or the Classification Act.
3. Public Law 357, 81st Congress: Increases benefits under Employees Compensation Act, by providing compensation for first three days if disability exceeds 21 days, also provides for monthly compensation of  $66 \frac{2}{3}$  of monthly pay for total disability and  $66 \frac{2}{3}$  of difference between monthly pay and monthly wage-earning capacity for partial disability; additional  $8 \frac{1}{3}\%$  for dependents; raises monthly limit to \$525. Provides for additional compensation for losses of members or functions of body. Increases death benefits, attendance allowance, burial expenses; authorizes safety program.
4. Executive Order 10080, enabling certain employees of the Federal Government to acquire a competitive Civil Service status.

5. Public Law 359, 81st Congress: Increases the rate of basic compensation of the heads of departments, their under-secretaries and assistant secretaries to \$22,500, \$17,500, and \$15,000 respectively. Also increased compensation of heads of REA and PMA to \$15,000 and heads of FCA, FS, FHA, FCIC, and SCS to \$14,000.
6. Executive Order 10072, to provide for continuing action to improve the Management of the Executive Branch of the Government.
7. Public Law 425, 81st Congress: Amends Civil Service Act to provide that every application for examination for appointment in departmental service shall be accompanied by certificate of officer of county and State of which applicant claims to be a citizen or statement under oath setting forth his legal voting residence for one year next preceding application accompanied by letters of three citizens of State corroborating such statement.
8. Public Law 429, 81st Congress: Amends Classification Act by substituting General Schedule for Professional, Sub-professional, and Clerical, Administrative, and Fiscal services; increases compensation, provides for longevity increases, and for awards for efficiency and economy in Government operations. Delegates to departments and agencies authority to classify positions in accordance with Civil Service Commission specifications up to and including GS-15, subject to post audit by Commission.
9. Public Law 393, 81st Congress: Amends Fair Labor Standards Act of 1938 and among other things requires a minimum wage of 75 cents per hour. The Department has administratively adopted this minimum wage rate.
10. Public Laws 98, 123, 212, 235, 267, 310, 320, 233 and 316, 81st Congress, amending the Retirement Act and leave laws.

(3) Budgetary and Financial Administration and Service.

Current Activities: The Office of Budget and Finance, as a staff office of the Secretary, exercises general direction and provides leadership and coordination of the budgetary, fiscal, procurement and management of operating and administrative supplies and equipment, and related activities of the Department. Examples of problems on which work is now being done, and with which the Office must deal constantly, include:

- (a) Further development and improvement of methods, instructions and policies to simplify and improve the effectiveness, and to increase the efficiency of departmental budgetary administration. The continuing leadership over



the past many years by the Office in this field was given impetus and increased significance by the recognition given by the Hoover Commission of the over-all management values in effective program "performance budgets," the principal elements of which are being adopted for Government-wide application.

- (b) Development of improved and modernized techniques and procedures to implement the joint (GAO-Treasury-Budget) program for improving accounting systems. This undertaking represents a highly significant improvement toward a more effective adaptation of accounting and related fiscal activities to the specific needs of management. The program contemplates that within the framework of broad accounting policies, individual accounting systems will be developed which will be responsive to the management needs of each individual agency.
- (c) Continuous review, study and development of reporting methods and techniques directed toward improvement in the form, content and usefulness of financial reports.
- (d) Formulation and application of improved techniques and procedures relating to property and supply management activities. The Federal Property and Administrative Services Act of 1949 (P. L. 152 - 81st Congress) was the most important forward step in this field in many years. The Office actively participated in the development of certain phases of this legislation and now is concerned with appropriate administrative implementation of its provisions.

The effective solution of these problems requires technical competence and a broad appreciation and understanding of Department and related governmental policies and programs, as well as close cooperation with other technical and program agencies concerned with these matters.

The work of the Office is performed through eight functional divisions and a small staff of budget and fiscal examiners who keep in direct, day-to-day touch with the work of the principal operating or program agencies of the Department. Along functional lines, the Office is primarily responsible for:

Policies and procedures: Formulation and promulgation of over-all departmental policies and procedures relating to the foregoing activities. This includes the refinement of existing budgetary, fiscal and related policies and procedures, the development of new methods and techniques to meet particular Department program needs, and the fostering of administrative and program management improvements through staff liaison and cooperation with agencies of the Department and with other governmental agencies concerned.

Budget formulation and presentation, and management of funds, involving the supervision and coordination of:

- (a) The formulation, preparation and presentation of budget estimates and supporting justifications, including the review, analysis and evaluation of agency estimates, the preparation of budgetary and statistical statements, etc., relating thereto, and the presentation of the estimates to the Budget Bureau and Appropriation Committees of Congress.
- (b) The allotment and apportionment of funds and current obligation reports thereon, in order to provide for the orderly management of the expenditure of funds, consistent with the purposes for which they were made available.
- (c) Fiscal and accounting functions, including the review of agency fund accounting systems and reports to ascertain compliance with applicable laws and regulations and to facilitate the establishment and maintenance of improved fiscal and accounting standards; technical assistance to agencies in developing charts of accounts and accounting methods adapted to their particular needs; and interpretation and implementation of Comptroller General Decisions, Budget-Treasury and GAO instructions and regulations; and the maintenance of summary control accounts on funds made available for expenditure by the Department.
- (d) Auditing activities, involving guidance and consultation with departmental agencies in developing policies, methods, standards and scope of internal audit programs, including programs relating to both government and commercial type audits of the financial activities of the various agencies and corporations within the Department.
- (3) Budgetary and financial reporting, involving the formulation and maintenance of a comprehensive and integrated system of financial and budgetary reporting within the Department; the review and analysis of agency reports to determine completeness, interpretability, timeliness, etc.; the preparation of regular consolidated and special financial and statistical statements covering all fiscal operations of the Department, including capital, appropriated, and other funds; the development of standards for effective and useful financial and budgetary reports; and advice to the agencies to facilitate use of financial, budgetary, and related operating statements.

Procurement and supply activities such as the acquisition, storage, effective utilization and disposition of administrative and operating supplies and equipment, and the formulation and promulgation of policies and procedures relating thereto, including the administration of delegations of procurement and sales authorities.

Program review, consisting of the analysis and evaluation of the budgetary, financial, and legislative aspects of program proposals and program operations in order to determine the budgetary and fiscal requirements and implications of such proposals and operations.

Legislative reporting, and the review and clearance of legislative proposals; coordination of the preparation and submission of legislative reports to the Committees of Congress and the Budget Bureau; and providing legislative information to departmental and agency officials in connection with bills and resolutions relating to agriculture, etc.

Fiscal management, involving a wide range of budgetary, fiscal, and administrative problems, such as the development of improved and simplified operating methods, procedures, administrative regulations and requirements, and operating instructions and controls; management improvements; measures of economy and efficiency; and the design, management and control of administrative and program forms. This function is carried on in close cooperation with other staff offices and governmental agencies.

Liaison: The Office services as the central point of contact for the Department on budgetary, fiscal, procurement, legislative and related matters with the Bureau of the Budget, General Accounting Office, Treasury Department, General Services Administration and others. It also provides liaison with Congressional Committees on Appropriations and with the House Committee on Agriculture.

(4) General Operations.

In a continuing effort to improve the effectiveness of the Office of Plant and Operations (General Operations) in its performance of assigned functions, including both staff and operating, the Office was reorganized in part during the fiscal year 1949. The reorganization provides for five divisions, viz., Technical Services Division, Records Administration Division, Real Estate Division, Service Operations Division, and Administrative Services Division.

Records administration. The program of this Division is devoted to discharging the responsibilities of the Office for establishing and maintaining an active and continuing departmental program for the effective management and disposition of records, as required by Executive Order 9784. In this connection, the Hoover Commission Task Force on Records Management reported: "There are extraordinarily effective records management programs in a few agencies of the Federal Government ..... Outstanding are the Department of the Navy, Department of Agriculture, the Atomic Energy Commission, the Federal Security Agency, and the Departments of the Army and Air Force ....."



Notwithstanding this and other complimentary references in the Task Force report, much remains to be done about the tons of record material which have accumulated during the eighty-seven years of this Department's existence and which continue to accumulate at the rate of approximately 175,000 linear feet yearly. This annual accretion would fill approximately 22,000 four-drawer file cabinets. Reports for the fiscal year 1949 indicate that 144,114 linear feet of obsolete records were disposed of by agencies of the Department.

The Division's staff has collaborated with many agencies of the Department in the development and planning of records management programs, including the installing of procedures, and disposing of valueless papers. Thus far, the program has primarily been directed to the situation in Washington. It has been possible to do only a very limited amount of work in the field.

With the creation of the General Services Administration, the importance of records management has been given greater emphasis in Government. The organization of the Records Administration Division provides a means for implementation of the Government records program in the Department and for greater acceleration in the development of agency records management programs. The staff of the Division also participates in the Inter-Agency Records Administration Conference, whose purpose is to promote and improve records management programs in the Federal Government.

The Agriculture Records Depository, a facility for the storage of inactive and semi-active records, which is located in the attic of the South Agriculture Building, is being used effectively by the agencies of the Department for the temporary storage of transitory records. The establishment of this facility has resulted in substantial economies by removing accumulations of papers from valuable office space to a convenient and economical centralized location pending their disposal.

Housing the Department's activities. The Real Estate Division is responsible for general direction and staff leadership in the housing of the Department's activities. The Department of Agriculture occupies 1,520,528 square feet of space in Federally-owned buildings in Washington, D. C., and 3,978,866 square feet of space in Federal buildings outside the District of Columbia. In addition, the Department occupies 4,461,787 square feet of rented space outside of Washington and approximately 995,295 square feet of rent-free space in court houses and other non-Federal buildings throughout the country.

The Office has been successful in holding the gains of recent years of space consolidation in Washington in spite of continued needs by Department agencies for increased square footage. All of the Department's agencies in Washington, except a few warehouse and storage activities, are now housed in the Agriculture group of Federally-owned buildings.

Since the close of the war increased attention has been given to planning improvements and repairs to Department-owned buildings in the field. Inspections and recommendations for renovations are being made by the Division's engineers with increasing frequency. Collaboration with the Public Buildings Service in planning for space requirements in future Federal buildings has been intensified.

All agencies of the Department are required to consult with and clear through the Real Estate Division proposals involving building construction or structural improvements prior to the submission of requests for funds. The Division is in this way able to render considerable assistance to the agencies in the planning of construction programs and to recommend the best sources of design and construction talent in the Government service.

Service operations. The newly-formed Service Operations Division represents the re-grouping, in a single organizational unit, of the former Photographic and Duplicating Services Division, Central Supply Division, Motor Transport Division, and portions (telegraph and telephone section and Department post office) of the former Communications Division.

The new division incorporates under the direction of a single divisional head, all of the Department-wide service operations rendered by the Office of Plant and Operations, as distinguished from the more localized services rendered to the staff offices comprising the overall Office of the Secretary by the Administrative Services Division. The concentration of responsibilities in one administrative grouping has eliminated duplication of effort, increased operating efficiency, and made possible some reduction in staff.

The heading "General Operations" also embraces the furnishing of technical engineering advice connected with the selection and utilization of scientific, construction, photographic, and automotive equipment, coordination of the Department's aerial photography and mapping operations, and the performance of a wide variety of necessary "housekeeping" functions, such as operating the central Departmental telephone switchboard and telegraph office, handling the Department's mail, and furnishing central storeroom and supply service, photographic and duplicating service, and motor transport service.

(5) Hearing Examiners.

The Office of Hearing Examiners was established December 9, 1946, by the Secretary of Agriculture in compliance with the Administrative Procedure Act (7 U.S.C. 1001 et seq.) Examiners hold quasi-legislative hearings when called on to do so by the administrative agencies of the Department and quasi-judicial hearings on disciplinary complaints filed by the Department against individuals and on petitions filed by private parties asking relief from some action of the Department or its agencies.

In general, the examiners make reports, recommend decisions, and perform such related duties as may be required by the Administrative Procedure Act and the statutory provisions, regulations, and rules of practice applicable to various matters under their jurisdiction. In accordance with the Administrative Procedure Act administrative hearings are, with few exceptions, held outside Washington, D. C. Hearings have been held under the Agricultural Marketing Agreement Act of 1937, the Packers and Stock-yards Act, the Commodity Exchange Act, the Perishable Agricultural Commodities Act, the Sugar Act of 1937, and the Anti-Hog Cholera Serum and Hog-Cholera Virus Act of 1935. During the past year, 4 new marketing orders have been put into effect making a total of 55 effective orders. Hearings have been held on 4 other proposed orders not yet made effective.

STATEMENT OF OBLIGATIONS UNDER ALLOTMENT

Item	Obligations, 1949	Estimated obligations, 1950	Estimated obligations, 1951
<u>Research and Marketing Act,</u>	:	:	:
<u>Department of Agriculture</u>	:	:	:
<u>(Allotment to Office of the</u>	:	:	:
<u>Secretary of Agriculture):</u>	:	:	:
For budgetary and accounting	:	:	:
services rendered in connection	:	:	:
with the Research and Market-	:	:	:
ing Act of 1946 .....	\$14,895:	\$12,400:	\$10,500
TOTAL, OBLIGATIONS UNDER ALLOTMENT	14,895:	12,400:	10,500

PASSENGER MOTOR VEHICLES

The estimates for 1951 provide for a continuation of the authority contained in the 1950 Act for the normal replacement of one of the automobiles assigned to the Office of the Secretary, and for such contingencies as the damage beyond repair of one of the cars used for the official transportation of the Secretary of Agriculture and his assistants.





(b) Working Capital Fund, Department of Agriculture

The working capital fund is a "no-year" operating fund of \$400,000 established by the 1944 Agricultural Appropriation Act to pay the operating costs of certain centralized service organizations pending receipt of reimbursements for such costs from the bureaus and agencies provided with the services. The integrity of the original appropriation is maintained from year to year by means of these reimbursements, and an appropriation in 1951 is, therefore unnecessary.

Statements reflecting assets and liabilities, income and expenses, and reimbursements of the working capital fund as of June 30, 1949, are printed in the Budget schedules and in the Subcommittee Print for the fiscal year 1951.



## RESEARCH AND MARKETING ACT OF 1946

### Purpose Statement

The Research and Marketing Act of 1946 provides for expansion of research and marketing services in which the Department of Agriculture, the State Agricultural Experiment Stations, the Cooperative State Agricultural Extension Services, the State Departments of Agriculture and Bureaus of Markets, and other public and private agencies are cooperating in solving agricultural problems, with emphasis on more effective marketing of agricultural commodities.

The Secretary is required to establish a national advisory committee of eleven members, six of whom are to represent producers of their organizations, to consult with the Secretary and other appropriate officials of the Department concerning research and service work authorized by the Act, and to assist in obtaining the cooperation of producers, farm organizations, industry groups, and Federal and State agencies. The Act also provides for the establishment, by the Secretary, of appropriate committees including representatives of producers, industry, government, and science, to assist in effectuating specific research and service programs. Committees have been established under this authority to advise the Department on the principal agricultural commodities and in functional or cross-commodity areas such as cold storage, foreign trade, and transportation.

1. Payments to States for research at agricultural experiment stations. (Section 9(b) of the Act) Grants are made to States for research into the basic laws and principles relating to Agriculture in its broadest aspects by the State agricultural experiment stations. Seventy-two percent of the payments are made in accordance with a formula in the basic act which takes into consideration rural and farm population and the need for research in small States. These payments must be matched by State funds. Twenty-five percent is paid to the States for carrying on regional cooperative research projects involving two or more States working together on problems of common interest. Most of the research under this Section is cooperative with research agencies of the Department. Three percent is made available to the Office of Experiment Stations, Department of Agriculture, for administration of research under this section. The regional cooperative research projects are recommended by a committee of nine persons elected by and representing the State agricultural experiment stations, and are approved by the Secretary of Agriculture.
2. Utilization research on agricultural commodities. (Section 10(a)) Research aims at developing new and expanded uses for agricultural products and is conducted by agencies of the Department and by public or private organizations or individuals under special contracting authority.
3. Research other than utilization. (Section 10(b)) All work undertaken by agencies of the Department with these funds is carried on in cooperation with State agricultural experiment stations or with agencies mutually agreeable to the Department of Agriculture and the experiment stations. The research is concerned primarily with production problems and regional marketing problems.

4. Marketing research and services. (Title II) This activity provides for research, service, and educational work in marketing. Funds are allotted directly to agencies of the Department for specified projects, or to State agencies on a matching-fund basis for carrying on projects under cooperative agreements, and are used under contract or cooperative agreements with public or private agencies, institutions, organizations, or individuals.

This appropriation is administered by the Agricultural Research Administration, and funds are allotted to those agencies of the Department which are best adapted to carrying out the necessary research and service work.

	Estimated, <u>1950</u>	Budget estimate, <u>1951</u>
Appropriated funds	\$19,175,000	\$19,290,000



Appropriation Act, 1950 .....	\$19,000,000
Anticipated pay adjustment supplemental, 1950 .....	175,000
Base for 1951 .....	19,175,000
Budget Estimate, 1951 .....	19,290,000
Increase (to place on a full-year basis in 1951, pay adjustments under Public Law 429 which were in effect for only a part of fiscal year 1950) .....	+115,000

PROJECT STATEMENT  
(Amounts Shown Include Pay Costs Adjustment)

Project	1949	1950 (estimated)	Increase P.L. 429 Adjustment	1951 (estimated)
1. Title I, Sec. 9 - Payments to States for research at agricultural experiment stations .....	\$3,231,945	\$5,000,000	- -	\$5,000,000
2. Title I, Sec. 10(a) - Utilization research on agricultural commodities ...	3,735,436	5,060,900	+\$56,100	5,117,000
3. Title I, Sec. 10(b) - Research other than utilization .....	1,912,988	3,046,500	+24,500	3,071,000
4. Title II - Marketing research and services .....	4,675,894	6,067,600	+34,400	6,102,000
Total pay adjustment costs, Public Law 429 .....	- -	(175,000)	(+115,000)	(290,000)
Unobligated balance .....	280,139	- -	- -	- -
Total available (as reflect- ed in budget schedules) ..	13,836,402	19,175,000	+115,000	19,290,000
Transferred in 1950 estimates to "Research on Agricultural Problems of Alaska, Depart- ment of Agriculture" .....	+13,598	- -		
Anticipated pay adjustment supplemental .....	- -	-175,000		
Total appropriation or estimate .....	13,850,000	19,000,000		

# OBLIGATIONS BY FINANCIAL PROJECTS

Financial Project	1949 (actual)	1950 (estimated)	Adjustments for 1951			1951 (estimated)
			P. L. 429	Contract	Other	
1. Payments to States for research at agricultural experiment stations ..	\$3,245,543	\$5,000,000	- -	- -	- -	\$5,000,000
2. Utilization research on agricultural commodities:						
(a) Developing new and improved uses .....	2,131,746	3,118,650	+\$39,050	+\$46,500	+\$5,500	3,209,700
(b) Improving human nutrition and extending food uses .....	414,909	578,100	+4,600	-30,000	- -	552,700
(c) Developing equipment and technological methods for improving quality and processing .....	1,090,837	1,244,350	+11,650	-8,000	-15,500	1,232,500
(d) Over-all administration .....	97,894	119,800	+800	- -	+1,500	122,100
Total .....	3,735,436	5,060,900	+56,100	+8,500	-8,500	5,117,000
3. Research other than utilization:						
(a) Improved uses of manpower, soil, water, plant and animal resources .....	642,122	979,250	+6,250	- -	-12,000	973,500
(b) Reduction of hazards and risks ..	673,138	1,233,250	+9,750	- -	-8,000	1,235,000
(c) Improvement and better use of farm homes, buildings, equipment, power and other facilities .....	304,143	403,100	+4,100	- -	+14,300	421,500
(d) Regional research in agricultural marketing .....	245,643	362,100	+3,600	- -	+5,700	371,400
(e) Over-all administration .....	47,942	68,800	+800	- -	- -	69,600
Total .....	1,912,988	3,046,500	+24,500	- -	- -	3,071,000

(Continued on next page)

Financial Project	1949 (actual)	Adjustments for 1951				1951 (estimated)
		1950 (estimated)	P. L. 429	Contract	Other	
4. Marketing research and services:						
(a) Basic data and information on supplies, movements and prices:						
(b) Expansion of outlets for farm products .....	574,389:	650,300:	+1,150:	- -:	-66,000:	585,450
(c) Measurement and analysis of marketing services, costs and margins .....	1,007,183:	1,298,050:	+5,950:	+7,000:	-10,000:	1,301,000
(d) Improvement in the grading, handling, packaging, transportation, storage, and merchandising .....	406,973:	723,400:	+6,800:	-68,440:	+59,440:	721,200
(e) Evaluation and improvement of marketing facilities, methods, policies, and organization and pricing practices .....	1,376,165:	1,640,550:	+12,500:	+19,500:	+37,000:	1,709,550
(f) Over-all administration .....	1,168,999:	1,611,600:	+6,600:	+49,450:	-28,950:	1,638,700
	142,185:	143,700:	+1,400:	- -:	+1,000:	146,100
Total .....	4,675,894:	6,067,600:	+34,400:	+7,510:	-7,510:	6,102,000
Total direct obligations ...:	13,569,861:	19,175,000:	+115,000:	+16,010:	-16,010:	19,290,000



EXPLANATION OF CHANGES IN FINANCIAL PROJECT ESTIMATES,  
1951 COMPARED WITH 1950

General: A complete examination was made of all projects currently operating in 1950 to ascertain the adjustments necessary to strengthen the research program in 1951. In each instance where work is scheduled for completion within the current fiscal year, or where only a small portion of a project remains to be completed in the next fiscal year, the budget has taken into account such adjustments, and provides more adequate support for other going projects or makes provision for a few new projects that are urgently needed.

Owing to the wide range of activity conducted pursuant to the Research and Marketing Act and the varying rates of progress experienced with different parts of the program, the review of financial requirements by projects is a continuous process. The commodity and functional advisory committees upon which much reliance is placed for guidance in conducting the program, are meeting during the next three months to review what has been accomplished in response to their recommendations. In the light of these reviews, as well as additional progress reports forthcoming prior to the end of the fiscal year 1950, it may be necessary to make further adjustments in individual work project budgets. Such adjustments are not expected to be large, but the flexibility they afford is important to take advantage of favorable opportunities that may arise for productive work as the research develops or as new problems confront the industry.

The amounts shown for the financial projects are net after making some adjustments within each, and after making provision for pay act increases authorized under P. L. 429. Exclusive of (a) adjustments in the administrative expense funds (which would provide on a full year basis for work in the Office of the Solicitor related to contracts under Section 10(a) and Title II), and (b) adjustments in individual contract proposals (which are not detailed here because of pending and future contract negotiations), the principal changes in the proposed use of funds are as follows (a more detailed explanation of the adjustments proposed for fiscal year 1951 will be found in the justifications of the respective bureaus receiving allotments from the Research and Marketing Act appropriation):

Section 10(a), Utilization Research: The principal adjustment under this section is to strengthen the important work on new and extended uses for fats and oils and by-products thereof. This adjustment is made possible by the application of savings accruing through the completion of work started in earlier years.

Section 10(b), Research other than Utilization: The completion of work in the first two financial projects will permit additional urgently needed work related to the use of labor-saving electrical equipment in the home and on the farm, and also aid in strengthening the Department's participation in regional marketing problems in cooperation with the State Agricultural Experiment Stations.



Title II, Marketing Research and Services: The principal changes in the financial project estimates reflect a greater emphasis on (a) research pertaining to costs and margins (or price spreads between producer and consumer) in their relation to the marketing services performed, (b) research dealing with transportation, especially on improving services and on the economic effect of higher rates and costs on agriculture, (c) contract work, and (d) new work on the marketing of grass and legume seeds, which is believed important to foster the shift toward grassland agriculture. These changes, each of which has been highly recommended to improve the program, would be financed with funds derived from the following sources: (a) completion of a number of small short-time projects and the elimination or completion of certain short-time phases of other projects, (b) the completion of exploratory and experimental phases on two marketing service projects (the 1951 estimates for the Production and Marketing Administration include funds for continuing the work as a regular service).

# CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

To enable the Secretary to carry into effect the provisions of the Act of August 14, 1946, as amended \*\*\*

- 1 In all, [\$19,000,000 of which not less than \$45,000 shall be available for work under Title II for the development of new and expanded market outlets for oilseeds, fats and oils and their products, and not less than \$180,000 shall be used under section 10 (a) for additional research on fats and oils, of which latter sum not less than \$45,000 may be used for contracts with public or private agencies as authorized by the said Act of August 14, 1946] \$19,290,000: Provided, That no part of this appropriation shall be used for beginning construction of any building costing in excess of \$15,000, except that a poultry breeding house may be constructed at Purdue University at a cost to this appropriation of not to exceed \$29,000: Provided further, That the Secretary may make available to any bureau, office, or agency of the Department such amounts from this appropriation as may be necessary to carry out the functions for which it is made (but amounts made available to the Office of the Secretary, Office of the Solicitor, and Office of Information shall not
- 3 exceed those which the [Director of the] Bureau of the Budget, after a hearing thereon with representatives of the Department, shall determine), and any such amounts shall be in addition to amounts transferred or otherwise made available to other appropriation items of the Department: \* \* \*

The first change proposes the deletion of language inserted in the 1950 Agricultural Appropriation Act making not less than \$45,000 available for work under Title II of the Research and Marketing Act for the development of new and expanded market outlets for oilseeds, fats, and oils and their products, and not less than \$180,000 under section 10 (a) for additional research on fats and oils. The 1951 estimates contemplate continuation of the additional research contemplated by the language of the 1950 Appropriation Act, and retention of the language is therefore no longer necessary.

The second change in language would provide authority for construction in 1951 of a poultry breeding house at Purdue University, Lafayette, Indiana, as a part of the total building program planned in connection with the cooperative regional poultry breeding project for the North Central region which has been initiated at that location (primarily for development of inbred lines to provide hybrid poultry).

The third change in language deletes the words "Director of the" for the sole purpose of simplifying and shortening the wording of this item. This change will not affect the administrative control or authority delegated to the Director of the Bureau of the Budget.

As of July 30, 1949, the administration of the Research and Marketing Act was transferred to the Agricultural Research Administration. This action was taken pursuant to Secretary's Memorandum No. 1237, of July 29, 1949. Effective coordination of Research and Marketing Act projects with other activities of the Département will continue to be realized under regulations and procedures previously in effect and such modifications as may from time to time be appropriate.

Fiscal Year	: Payments to States (Sec. 9)	: Utiliza- tion Research (Sec.10(a))	: Research other than Utilization (Sec.10(b))	: Marketing Research and services: (Title II)	: Total
	:	:	:	:	:
	:	<u>Authorizations</u>	:	:	:
1st year.	\$ 2,500	\$ 3,000	\$ 1,500	\$ 2,500	\$ 9,500
2nd year	5,000	6,000	3,000	5,000	19,000
3rd year	10,000	9,000	4,500	10,000	33,500
4th year	15,000	12,000	6,000	15,000	48,000
5th year	20,000	15,000	a/	20,000	61,000
Succeeding years	a/	a/	a/	a/	a/
	:	:	:	:	:
	:	<u>Appropriations</u>	:	:	:
1948	2,500	3,000	1,500	2,000	9,000
1949	3,250	3,900	1,950	4,750	13,850
1950	5,000	5,000	3,000	6,000	19,000
1951	:	:	:	:	:
Estimated	5,000	5,117	3,071	6,102	19,290
	:	:	:	:	:
	:	:	:	:	:

a/ Appropriations authorized in such amounts as Congress may deem necessary.



## Research at State Agricultural Experiment Stations

Program at State Stations (Section 9). Funds appropriated under Section 9 of Title I are granted to States for research by the State agricultural experiment stations. Seventy-two percent of the appropriation is paid to the States, Territories and Puerto Rico on a matching basis in accordance with formulas laid down in the basic act. Twenty-five percent is paid to the States for carrying on regional cooperative research projects involving two or more States. Much of the research is cooperative with research agencies of the Department. The broad field of research undertaken by the State Experiment Stations includes work on agricultural economics and rural life studies; agricultural engineering; animal industry; field crops; farm forestry; horticulture; new crops; soils and plant nutrition; plant diseases; insects; weed control; human nutrition and home economics; basic biological and chemical investigations; research planning and techniques.

The research program of the stations under Section 9, therefore, includes (1) cooperative regional research by groups of experiment stations on problems that concern the agriculture of two or more States, and (2) research by the separate stations on problems of more immediate concern to the agriculture of the individual States.

The program of research initiated by the State agricultural experiment stations with funds appropriated for 1948 was extended and strengthened under the increase of \$750,000 provided for 1949. The distribution of funds appropriated under Section 9 during fiscal years 1949 and 1950 is indicated in Table I which follows the list of selected research results.

Although the primary support of the cooperative regional research program is derived from allotments from the regional research fund, this support has been supplemented by other Federal-grant funds available to the stations and by funds derived from non-Federal sources, chiefly from State appropriations. Approximately one-half of the funds made available to the States from Section 9 have been used for the regional research program. The commodity distribution of research under regional projects is indicated in the following summary.



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STATUS OF PROGRAM

and Marketing Act of 1946 provides for expansion of services in which the Department of Agriculture, Experiment Stations, the Cooperative State Agencies, the State Departments of Agriculture and other public and private agencies are cooperating on problems, with relatively more emphasis on more agricultural commodities. Initial work under the Act was begun in the fiscal year 1948.

In 1949, the administration of the Research and Marketing Act was transferred to the Agricultural Research Administration pursuant to Secretary's Memorandum No. 1237, of July 1949. The Research and Marketing Act project under the Department will continue to be realized under the procedures previously in effect and such modifications as may be necessary.

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Expenditure of Section 9 Funds by Lines of Investigation for Cooperative  
Regional Research

	1948 Actual	1949 Estimate	1950 Estimate
Marketing research			
Cotton	\$ 27,066	\$ 67,737	\$ 63,190
Fruits and vegetables	69,304	165,666	171,660
Milk and dairy products	59,257	110,298	137,020
Livestock and wool	64,539	143,813	139,990
Potatoes	80,350	117,115	119,080
Poultry and eggs	119,450	196,372	220,810
Total marketing research	\$419,966	\$ 801,001	\$ 851,750
Research other than marketing			
Cotton improvement and mechanization	\$130,665	\$ 233,930	\$ 210,870
Foods and human nutrition	143,222	247,705	297,920
Introduction of new plants	4,008	73,716	71,760
Improvement of farm houses and buildings	108,640	210,996	232,640
Newcastle disease of poultry	32,002	67,460	84,800
Beef cattle breeding	14,920	64,917	224,190
Dairy cattle breeding	23,827	113,347	169,450
Poultry breeding	32,715	69,328	117,170
Death losses in young pigs	—	1,500	9,500
Farm management	—	—	13,805
Improvement of pastures, forage crops and small grains	—	2,000	33,290
Soil management	—	25,078	27,500
Weed control	—	1,800	10,270
Total other than marketing	\$489,999	\$1,111,777	\$1,503,165
Total, Section 9	\$909,965	\$1,912,778	\$2,354,915



Research on local problems. The remaining part of the funds allotted to the States under Section 9 has been used to help solve problems of primary concern to the individual States.

New research has been undertaken during the fiscal year 1949 in both marketing and non-marketing fields of activity. Such marketing research not covered by regional programs was undertaken in numerous lines of activity of which the following are illustrative:

1. The economic problems involved in competition in marketing of agricultural products.
2. The influence of current demand on agricultural prices.
3. Improving the efficiency in marketing agricultural products.
4. Improving marketing facilities and equipment.
5. Importance of marketing losses and spoilage during the marketing process.

Research in fields other than marketing has been expanded through the use of additional funds available in 1949. New research which has been undertaken is illustrated by the following examples:

1. Research of virus diseases and insects of stone fruits.
2. Breeding for disease resistance in flowers, shrubs and field crops.
3. Chemical control of fruit flies.
4. Biology and control of tobacco insects.
5. Irrigation research.
6. Control of weeds.
7. Nutritional status of population groups.
8. Chemical and quality changes in food products prior to consumption.
9. Research on farm housing.

Publication of research findings. Although research results cannot be expected in large volume during the first years of a new research program, 229 publications and manuscripts were prepared under the cooperative regional research program during 1949. An increasing volume of publications is anticipated as facts are developed under the current program.

A few brief examples of results reported by the stations during 1949:

Savings in Marketing Grapefruit. A new paperboard type of container to take the place of wirebound, wooden boxes in the marketing of grapefruit saves producers 15 cents a box. Also, the fruit reaches consumers in better condition. The container was developed by the Arizona station as part of a regional project, which also showed the bulk handling of grapefruit resulted in a saving of \$23,000 per 700,000 field boxes. In another study consumers showed a marked preference for grapefruit marketed in yellow bags, rather than the red mesh bag commonly used for oranges.



Losses in Egg Quality Many Millions of Dollars. Losses from quality deterioration in eggs marketed in the United States last year were over \$32,000,000, on the basis of a study by the North Central States and the Department of what happens to eggs between the point of first sale and carlot assembling plants. Eggs held a day or less in the summer at country grading centers averaged a loss of only 7.8 points in quality. Eggs held two days or longer averaged a loss of 17.6 points. These losses mean higher prices to consumers for quality eggs and lower prices to farmers.

Back Fat a Measure of Pork Quality. A North Central regional marketing project has shown definitely that thickness of back fat on the hog carcass is a measurement of quality in other cuts since excess of back fat indicates excess fat in cuts used for meat. Hogs generally have been sold almost entirely on the basis of weight, but this new information may mean more emphasis on quality. Some packers have announced they will use this new yardstick in their purchases of slaughter hogs.

Electric Eye Sizes Lemons. An electronic sizer, which will handle 270 lemons a minute, has been developed by the California station. It operates on the principle of the electric eye, and opens and closes trap doors for six sizes of field run fruit. The principle also is being applied experimentally to electronic color sorting.

Loose Housing for Cows Cuts Building Costs in Half. North Central research indicates that investment costs in dairy buildings may be cut in half by using approved loose housing units rather than stanchion type barns. Approximately 1,500 dairy farmers in Northern and Eastern States are operating dairy farms successfully under the loose housing system and several of the major fluid milk markets are now accepting milk from herds housed in group units. Lower housing and labor costs will help keep dairy incomes up, if milk prices become lower.

Graded Wools Sell Better. The Texas Agricultural Experiment Station, as its part of a regional project, graded nearly 700,000 pounds of grease wool. The graded wools averaged 80.2 cents a pound as compared with 75.5 cents a pound for the "original bag" wools. If the same profit was made on the yearly Texas wool clip, it would amount to \$1,884,000.

#### Research and Service Work by the Department

Research and service work authorized by Sections 10(a) and 10(b) and by Title II of the Research and Marketing Act are in the main carried out by agencies of the Department. There follows a brief discussion of each of these authorizations, together with other pertinent information regarding the Act, and examples of preliminary results of work accomplished.

Utilization Research (Title I, Section 10(a)). The Department is authorized under Section 10(a) to conduct additional research on utilization and associated problems in connection with the development and application of present, new and extended uses of agricultural commodities and their products. Insofar as practicable such research is conducted in laboratories of the Department. If it is determined that any such

research work can be carried out more effectively, more rapidly, or at less cost by a private or public research agency other than the Department, the work may be performed under contract. Examples of preliminary results are:

Buttermilk Improves Ice Cream. It has been shown that good sweet cream buttermilk makes better ice cream than the skimmilk concentrates generally used. Ice cream made from sweet cream buttermilk had better whipping properties and a smooth creaminess absent in ordinary ice cream. A process for manufacturing a sweetened, condensed buttermilk was developed. This concentrate is excellent for use in ice cream.

New Research With Potatoes. A process for making puffed potato dice, which are crisp and appetizing, has been developed. The puffs, a new product with commercial possibilities, can be eaten straight, used as croutons, or in preparing other foods. Potatoes are diced and blanched by boiling in a salt solution. They are then put in a chamber and agitated by a stream of heated air. In a few minutes the dice puff and become crisp and light brown in color. No oil is used and keeping quality is good.

Also, a dried mixture of whey and potatoes has been developed which has been used successfully in soups and bakery goods. For the baked goods, whey can be used up to 20 percent of the flour weight without impairing quality.

A grader has been developed that separates potatoes on the basis of specific gravity. Potatoes are carried through a tank filled with a salt solution. Those that sink are best for baking.

Precooked and Frozen Poultry. Preliminary studies indicate that pre-cooked frozen foods may be excellent outlet for certain kinds of chicken and large turkeys. Differences that are apparent in poultry cooked and served in the usual manner are not noticeable when meat is removed from the bone, cut in pieces and combined with white sauce. Present equipment for commercial cooking of poultry can be used.

To help extend the market for turkeys, especially the very large turkeys, a new illustrated bulletin gives information on time and temperatures for cooking, suitable stuffings, and related facts for home cooking of whole turkeys, for turkey meat leftovers, and also for parts of turkey.

New and Better Uses for Cotton. There is great promise in the development of a water repellent cotton cloth, in which passage of water is prevented by swelling of the fibers in the cloth. Studies are under way to find the types of cotton best suited to this purpose.

As part of research on the serviceability of cotton fabrics for clothing and household use nearly a thousand work dresses made of utility percales are being tested at four State schools. The garments are worn by students and technicians and are laundered at specific intervals under specific conditions. Resistance of the percales to wear is being tested at regular intervals. The cotton used is representative of varieties produced in quantity.



New and Easier Ways to Prepare Beans. A new use for dry beans has been developed. The product, ready-to-eat salted beans, is in some respects like salted, roasted peanuts. The beans are fried in deep fat, roasted to a golden brown, and while still warm are seasoned. The beans store well for reasonable periods and retain their palatability and crunchy texture. In using dry navy beans, home economists find that long soaking before cooking is not necessary. Beans can be properly rehydrated in as little as one hour, if they are boiled for two minutes, and then allowed to cool to room temperature.

New Fruit and Vegetable Laboratory. A new laboratory at Pasadena, California, construction of which began in fiscal year 1948, gives adequate facilities, for the first time, for research on utilization of citrus fruits and other agricultural products of Southern California. The new building, financed from the Research and Marketing Act appropriation, houses chemical laboratories, a pilot plant for studying fruit and vegetable processing methods on a semi-commercial scale, and other necessary facilities.

New Source for Tannin. Field and laboratory studies have shown that tannin, essential to the leather industry, can be produced from the roots of canaigre. High tannin strains of canaigre can be propagated to yield per acre, under irrigation, as much as 10 tons of roots with a tannin content of 30 to 35 percent. Experiments on the most efficient methods of extracting the tannin are in progress.

Trucked Produce Must be Pre-Cooled. Research on the truck transportation of pre-packaged sweet corn and other products, showed there is little over-all cooling in transit, even with mechanical units, which are more efficient than ice bunkers. This means there must be more thorough cooling where produce is grown. Once cooled, equipment on the trucks maintains produce at a satisfactory low temperature.

Dead Timber May be Salvaged. Research on the decay rate and salvage period for insect-killed and fire-damaged timber indicates there are at least 4 billion feet of beetle-killed spruce in Colorado which could be salvaged for pulp for at least the next 20 years. Budworm-killed fir in the Northeast must be salvaged within 3 years. Further work on determining the maximum salvage period of uncut but dead timber continues.

Lower Cost An Important Factor in Increasing Milk Consumption. Consumption-nutrition studies leading to greater use of U. S. farm products show, for example, that families at the same income level used twice as much milk in Minneapolis-St. Paul as they did in Birmingham, where the cost per quart was 5 cents greater.

Dried Apple Pies with Fresh-Apple Quality. In studies of preparation methods which will improve palatability of foods in abundant supply, it has been shown that commercially evaporated apple rings may be made into highly acceptable foods ranging from main dishes to desserts, if reconstitution recipes are adapted to the dish desired. For example, pies of fresh-apple quality have been made from the evaporated apples. This and other recipes have been published.

Food Consumption Increased Most Among Low Income Group. Data secured on food consumption of urban families show that since 1942 consumption of protective foods such as milk, citrus fruits and meats has increased among all income groups, most among families of the lowest third, when ranked by income, least among those in the highest third, and wide differences in the use of some foods at a given income in cities on widely separated parts of the country. These data afford some measures of the potential market for greater food utilization at all income levels.

Research other than Utilization (Title I, Section 10(b)). This work might be termed the Department's counterpart to the research performed at State Agricultural Experiment Stations under Section 9 for production and marketing problems. The research work of the Department under this item, must be carried out cooperatively with State Agricultural Experiment Stations or other agencies mutually agreeable to the Department and the State. These funds make possible the mutual inter-change of information between the Federal and State agricultural research agencies and a joint attack on agricultural problems. Examples of preliminary results are:

Dairy Cattle Adapted to Warm Climates. Preliminary tests indicate that Red Sindhi x Jersey crosses have more tolerance to sustained high temperatures than Jerseys or Holsteins of the same age. The thrifty condition of these young crossbreds under these conditions shows promise of their doing well as mature animals, though their value as milk producers is yet to be determined.

Peach and Cherry Diseases Caused by Same Virus. It has been found that western X disease of peaches and Little Cherry disease are caused by strains of the same virus. This means that these two diseases may be transmitted by the same insect or other vectors. More than 500 transmission tests using more than 30 different insects have been made in Utah, Oregon and Washington.

Development of Superior Beef Cattle. As a beginning in this longtime breeding project about 130 lines have been established. These breeding herds include more than 5,000 females two years old or over. The cattle are owned principally by the 17 State agricultural experiment stations which are cooperating with the Department.

Improving Poultry Through Breeding. More than 80 inbred lines of poultry are being carried and developed by 10 experiment stations in the North Central States as a means of studying breeding techniques and to find combinations suitable for developing commercial hybrids.

Sheep Parasite Investigations. Preliminary investigation of the ways in which sheep become infected with the fringed tapeworm, and of what causes scouring in lambs showed (1) that sheep on irrigated pastures in the West seldom acquire the fringed tapeworm, whereas 60 percent of those on other range become infected, and (2) that large numbers of intestinal parasites predispose lambs to scouring and general unthriftiness.



Maintaining Quality in Sugar Beets. It was found that allowing beets to dry in the field for even a few hours greatly increased decay, indicating that mechanical harvesting that permits immediate loading and hauling to factory storage piles helps prevent crop loss. Mechanically harvested beets kept as well as hand harvested beets in ventilated storage towers.

Flame Weeders for North Central Area. Studies indicate that flame weeders may be used successfully and may become standard equipment for row crops in the North Central States where perennial grasses are present as weeds and where early season mechanical cultivation is not effective because of frequent rains. Tests so far show that flame weeders may be used without injury to corn yields.

Airplane Application of Insecticides. Preliminary work on spraying peas in the Northwest for control of the pea aphid showed most effective application was at vine top level or not more than one or two feet above. Effectiveness of applications at 3 to 6 feet above the vines was further reduced by 7 to 14 percent at heights of 25 feet. It also was found that a 30-foot spray boom was not effective on more than a 40-foot swath.

Aluminum Paint on Cattle Sheds. Studies on ways to reduce summer temperatures in sheet metal dairy cattle sheds have shown that use of aluminum paint on the metal lowers temperatures on an average of 3 degrees F., and sometimes as much as 8 degrees. This information is important to dairy-men using the open-shed method of handling dairy cows.

Farms Increase Use of Electricity. A study of 460 farms in Iowa showed an increase in average annual consumption of electricity from about 900 kilowatt hours in 1938 to more than 2550 kilowatt hours in 1948, an increase of more than 10 percent a year. After 30 years of using electricity, there was no indication of a leveling off in consumption. Approximately 80 percent of total consumption was for use in farm households.

Data from Housing Surveys Fill Immediate Need. Publication of regional reports, one of which is in press, on surveys of farm housing requirements will make available data needed at once in the development of low-cost housing in rural areas under the 1949 Housing Act. Additional special analyses of the data as needed will also be made.

Farm Mechanization. The technical feasibility of harvesting cotton mechanically has been demonstrated, but the economic conditions under which it will pay farmers to harvest by machine methods are less well known.

In 1947 the machines studied in the Mississippi Delta operated an average of about 310 hours each and harvested an average of 109 bales of cotton. Average cost of machine operation was about \$15 per bale, of which repairs and depreciation accounted for about 60 percent. Higher field waste and lower grade of cotton compared with hand picking are additional costs. Field waste of 8 percent in 1947 was equivalent to about \$13 per bale based on 1947 prices. Machine picked cotton averaged one full grade lower than hand picked cotton, or a value of nearly \$8 per bale. Adding machine operating costs, waste and grade loss, the total cost was about \$36 per bale in 1947.

When the higher 1948 machine prices of over \$8,000 per machine are considered in calculating fixed charges, the total cost of machine picking amounts to about \$39 per bale--equivalent to a handpicking rate of \$2.65 per hundredweight of seed cotton. Hand picking rates averaged about \$3 per hundredweight in the Delta area in 1947. Because of heavy fixed charges, a machine will need to pick at least 100 bales per season to compete with hand picking at \$2.50 to \$3.00 per hundredweight of seed cotton.

Other similar studies are under way in Texas, North Carolina, South Carolina, and California where different economic and physical conditions are encountered.

Marketing Research and Services (Title II). Under this title of the Act research and service work is aimed at the development of a sound and efficient marketing system. It authorizes work on virtually all phases of marketing. Authority is available for cooperation with State Agricultural Experiment Stations, State Extension Services, and State Departments of Agriculture and Bureaus of Markets. Payments may be made to those agencies for cooperative projects on a matching basis. This title also contains authority for conducting research and service work by contract comparable to that included in Title I, Section 10(a) of the Act. Examples of preliminary results are:

Better Use of Transportation. A study of more than 23,000 cars of freight showed that nearly 20,000 were delayed one day or more. The delays ranged from one to 34 days, and average 3.2 days. If the average "turn-around" time of all cars loaded last year could have been reduced one day, it would have been equivalent to adding more than 117,000 cars to the railroad fleet. The data obtained have been formally submitted to the Interstate Commerce Commission with the suggestion that if the railroads would reduce inefficiencies such as these it would obviate the necessity for at least part of the rate increases requested by them. The data are now being studied by that body and by the Association of American Railroads.

Annual estimates of the transportation "bills" for foods and agricultural products generally constitute one group of completed studies. Partial explanations for trends in those "bills" were found by developing rate indexes for wheat, cotton, fruits and vegetables. However, a

detailed study of potato movements to Washington, D. C. proved that changes in rates are only one factor—changes in sources of supply and volume also exert a strong influence on transportation "bills," both seasonally and over longer terms. Companion studies of all three factors are nearing completion for more commodities and additional markets.

Mechanization in Marketing Channels. Mechanization has cut costs in the production of farm crops. But there has been little research on mechanized handling of farm commodities in marketing channels, even though labor costs have been increasing. More than 1,500 time studies in 40 cities show how machinery could save time and money in handling boxes, bales, crates, cartons, baskets and other packages in warehouses, and in moving them off carriers.

Packaging of Beans, Peas and Rice. A survey in about 30 key distribution centers revealed that roughly 75 percent of these commodities are now packaged for retail sale. The survey, recommended by industry because prepackaging has come into the picture without much basic research, showed that consumers prefer the window-front and cellophane packages rather than those in which the commodity is not visible. But the transparent packages present problems. Among these are bleaching of the commodity, tendency of package to break when adhesives are used, and possibility of mold if moisture content is too high. Such problems are being studied with good cooperation from manufacturers of transparent materials and packaging machinery, and from packagers.

Maintaining Seed Identity. Seeds of improved varieties of grasses and legumes are urgently needed by farmers, but the identity of much of this better seed is lost in marketing. A study has been made of seedmen's and warehouse records in 25 States and seed certification procedure in 18 States. This study has revealed the types of records, inspections and seed cleaning practices that would overcome existing difficulties. This information has been made available to State seed certification agencies and others interested in the problem.

Improved Weighing of Livestock. A scale which uses the principle of electronics has been developed for weighing livestock at public markets. It is fast and accurate and automatically indicates and records weights, thus avoiding any chance of errors by weighters.



The printing device can also be used to record the kind of livestock, number of head, name of sales agency and the date of sale. The scale, developed by a commercial firm under contract, has proved satisfactory at different public yards under all weather conditions.

Refrigeration of Fruit for Market. Research in California and Arizona has shown that fruit to be shipped to distant markets may be cooled more rapidly in a special cooling tunnel than by other methods. Grapes exposed to a blast of cold air as they moved slowly through the tunnel were cooled in two hours or less, compared to 14 to 18 hours by other methods which might delay shipment a full day.

Better Storage for Apples. A study of apple losses in Virginia through leakage of warm air at doors to cold storage houses reveals these losses may run as high as 30 to 40 percent of the plant capacity. Also, losses can be greatly reduced simply by seeing that the supply of cold air is directed to all parts of the storage house.

Inadequate Farm Storage for Grains. A grain storage survey in North Carolina, one of a series on adequacy of storage in several States, revealed that only 7 percent of the farm corn cribs in the State, and only 10 percent of the farm small grain storage, will meet requirements for Government loan programs. This means that very little farm storage is rodent and weather-proof, well ventilated, and so built that it can be fumigated for control of weevils.

Cranberries May be Prepackaged Early. Work in Massachusetts shows cranberries may be put in the retail cellophane bags which consumers prefer at the time they are harvested, and then stored from four to eight weeks with little spoilage, if storage temperatures are kept at 38 degrees or lower. This method saves labor. After storage, the berries may be held as much as a week at room temperatures in homes or retail stores.

Prepackaging of Perishable Foods. Time studies and cost analyses were made which showed ways of increasing the labor productivity in prepackaging other commodities and assistance was given to the food industry in adopting more efficient methods and practices. A new and mechanized method of prepackaging apples at shipping point in transparent film bags was developed during the past year. A bag-filling device which is much more efficient than hand labor was developed and the possibility of obtaining a Government patent on it is being investigated.

Retailers Taught Fruit and Vegetable Handling. One-day training courses in the handling and merchandising of fresh fruits and vegetables have been conducted (under contract) for more than 12,000 retailers and their employees, in 69 cities and 29 States. A survey revealed that a high percent of retailers not using recommended practices had adopted them after the training course: 89 percent were using color contrasts in displays, 87 percent were watering produce on display, and 98 percent had adopted the best trimming practices. More than 96 percent said the course had helped them sell more vegetables and 95 percent said they had been able to reduce spoilage losses.

Standards for Processed Fruits and Vegetables. Studies in this field have developed data for new and revised standards for grades of processed fruits and vegetables such as canned green and wax beans, beets, carrots, potatoes, black-eye peas, canned and frozen red sour pitted cherries, frozen pineapple, raspberries, and strawberries, canned orange juice, grapefruit juice, orange and grapefruit juice blended, tangerine juice, frozen orange juice concentrate, dried figs, fruit jams and preserves, and cucumber pickles. In addition, through a contract with the National Association of Frozen Food Packers, methods were developed for determining the fill of containers for frozen fruits and the drained weight of frozen vegetables. These methods are being tested and, if suitable, will be made part of the official U.S. standards.

Prevention of Insect Damage. In research on ways to prevent insect damage to stored grains, cereals and seeds, Department scientists have discovered a chemical treatment which keeps insects from entering cotton bags, but which is harmless to humans and animals. In one test flour-filled bags, one treated and the other untreated, were placed in a room with heavy insect population. In seven months, no insects entered the treated bag, but more than 500 were found in the untreated bag.

Buyers Want Quality Potatoes. Buyers of potatoes for restaurants and hotels in two cities look for quality, type, size, and price in that order, according to the results of another consumer preference study on potatoes completed during the year. Although many say they cannot find them on the market, a majority prefer washed potatoes because they save time and work and keep dirt out of the kitchen. Most buyers in both cities buy in 100-pound burlap bags and are satisfied with these containers. Comparatively few buy enough to last as long as two weeks. The buyers are especially interested in avoiding waste and in getting potatoes that cook up well, that can be used for different purposes, and that peel and slice easily.

Mens' Preferences in Clothing. In a consumer preference study completed during the year, men indicated the important features they look for in selecting certain items of clothing. Style and construction features headed the list for both business and sport shirts. Quality and kind of material led in the case of extra trousers and summer suits. But when it came to giving reasons for preferring various fibers, comfort led in the case of most garments almost regardless of the fiber preferred. Only in the cases of business shirts, underwear, and pajamas did more than half of the owners agree as to their preferred fiber. In these cases the preferences voiced by about two-thirds of the owners were for cotton. Cotton also



was preferred in summer sport shirts, socks for year-round wear, and underwear for use in winter only. Men expressed a preference for wool in extra trousers for year-round wear, in socks for use in winter only, in summer suits, and in robes. In the case of extra trousers for use in the summer only, a mixture of fibers was preferred.

City Dwellers Buy More Pears. City dwellers were much more likely to have bought winter pears than those living in small towns or on farms, according to replies in a consumer preference study on winter pears completed during the year. Nearly half the urban homemakers had purchased pears during the winter month before they were interviewed while only one in twenty farm families had made such purchases. Nearly all (94 percent) of those who had bought pears said they ate the fruit raw, out of hand. A few mentioned putting them in lunch boxes and such uses as stewing, baking, preserving, canning, and raw in salads or fruit cocktails.

What Do Rice Users Like? Ways for expanding the domestic demand for rice were sought through a consumer preference study completed during the year. It was found that nearly all of us, 88 percent, are using some rice, but that large families were a little more likely to use it than other families, and also to use it more frequently. While differences in income had but little effect upon whether or not families used rice, among frequent users income was found to be lower. Preferences with respect to preparation methods and concerning foods with which it is served were ascertained. While there seems to be a rather widespread belief that a large proportion of homemakers never use rice except for desserts, as in puddings, the results of the study indicate that only 8 percent use rice for dessert or breakfast to the exclusion of other methods of preparation.

New Preference Studies Started. Consumer preference surveys are under way with respect to apples, citrus fruit, citrus juices, and fruits that bakeries use in pies. Work is also being started to find out the preferences of one or two groups of industrial users with respect to cotton, wool, and other fibers. The information obtained through such studies about types and quality of products desired is being used by growers in planning their production. The results also are serving as a basis for improving the marketing of agricultural products, for assisting in developing new uses, and a guide in selecting problems for additional research.

A survey of transportation at the farm level showed that farmers were dependent upon for-hire or buyers' trucks to move 55 percent of their crops and products from the farm to initial market, trailers are substitutes for trucks to such an extent that almost as many farms own only trailers as there are that own trucks, but 53 percent of the farms still do not have either a truck or trailer.

Weekly Chick Movement Reports Aid Industry. The reports on weekly placement of broiler chicks on farms in commercial broiler areas, including data on eggs set, chicks hatched, and in-shipments, are now a well established service in the 7 major areas covered. The reports have had an unusually popular reception from broiler producers and the industry as a whole, since they have provided much-needed information as to probable



future marketings of broilers and provide a reasonably dependable means of determining the number of broilers to come on the market 12 to 14 weeks hence. In the Delmarva (Delaware-Maryland and adjoining territory) area, an innovation was developed in cooperation with the Market News Service, to further improve the reports as a marketing aid by reporting weekly total number of broilers processed and shipped alive, which materially assist the industry in adjusting operations to the marketing situation.

Trail Reports on Cattle on Feed Widely Used. Preliminary work to determine the best means of estimating and reporting upon the number of cattle on feed quarterly, has had most encouraging results in the several Corn Belt and Western States where sampling and estimating techniques have been put to test. The survey results for Iowa and Nebraska since July 1948, and subsequently for Illinois, Idaho and Montana, have been well received and commended by cattlemen and the livestock industry as an important guide in their feeding and marketing operations.

Vegetable Seed Reports Guide Production and Marketing Effort. The basic information developed on acreage, production and stocks of 263 kinds, varieties or types of vegetable seeds has served repeatedly as an essential foundation for Government, producer and trade action in marketing these important and frequently specialized crops. Three principal surveys and reports are made: March 15 on probable acreage and production, July 1 survey of dealers' carryover of old-crop seed, and December 1 preliminary estimates of acreage and production.

Commodity Stocks Reports Round Out Supply Picture. The problems relating to marketing and disposition of certain quite important commodities have been magnified by a lack of adequate current knowledge of stocks on hand at suitable intervals. For most of these commodities, new methods have had to be devised to be certain of securing adequate data and representative coverage for accurate estimates. Reports are made on flaxseed stocks quarterly; sorghum grain stocks semiannually; potato stocks, February 1 and March 1, hop stocks, September 1 and March 1, and stocks of Naval Stores monthly.

Facts Now Secured on Fluid Milk Consumption. Data on fluid milk and cream usage have been so much less complete and satisfactory than for other segments of the dairy industry, that work was authorized to develop such data. Fluid milk represents the highest priced outlet to producers. There is serious need of adequate facts upon which to plan for expansion or modification of fluid milk uses, especially in periods when surplus milk supplies develop. Information is now reported monthly, on average daily sales of fluid whole milk, fluid skim milk, and butterfat in fluid cream, together with averaged dairy receipts of milk from producers, in 20 selected marketing areas operating under Federal Milk Orders.

Farmer's share of consumer's meat dollar is relatively large when meat prices are high. A report on farm-to-retail margins for livestock and meat compares the distribution of the consumer's meat dollar when prices are at different levels, and discusses some of the more important cost factors in marketing. In 1932, when the average retail price of meat was 20.0 cents a pound, the total marketing margin was 66 percent of the consumer's dollar.

In 1939, when the price of meat averaged 24.4 cents, the margin was 52.5 percent; and in 1947, when the retail price was 55.4 cents, the marketing margin was 36 percent of the consumer's dollar. The decreasing percentage margin in 1939, and again in 1947, resulted from relatively greater increases in the price of meat than in the margin (in cents per pound) taken for performing the functions of marketing. In 1947 meat packing took a relatively greater portion and retailing and marketing of livestock accounted for smaller portions of the total margin than in 1932 and 1939. The farm value as a percentage of the retail price of meat was 60 percent in October 1948 and 57 percent in October 1949. This illustrates further the basic tendency for the farmer's share of the consumer's meat dollar to be high when the average price of meat is high.

A steady growth in the volume of business of Memphis, Tennessee, milk distributors and a policy on the part of leading milk distributors of maintaining narrow margins to protect and reinforce their position in the trade channel has contributed to the relatively low cost of distributing milk in the Memphis market. Seven Memphis milk dealers had an average profit of 0.13 cent per quart, equivalent to a return of 5 percent on investment in 1948 according to the findings of the Bureau of Agricultural Economics and the Tennessee Agricultural Experiment Station. The average margin between prices paid producers and prices charged consumers for milk in Memphis delivered to the home was 6.0 cents per quart, one of the lowest in the United States.

Marketing margins on eggs were lower for eggs sold through integrated marketing agencies. A study of margins on eggs marketed from Wisconsin and Minnesota indicated that where several agencies handled eggs between farmer and retail store in 1948 the farm-to-consumer marketing margin was about 25 cents per dozen, but where eggs were handled only once the marketing margin was only about 13 cents. Some other findings were that more uniform production of eggs throughout the year would lower egg marketing costs and that costs of grading and quality deterioration present substantial opportunities for savings. Subsequent studies by the Bureau during 1949 indicate that the marketing margins disclosed in the 1948 report have been maintained at approximately the same levels.

Grower received 26 cents of consumer's dollar spent for Washington apples in Chicago. A study of farm-to-retail margins for Washington State Delicious apples sold in Chicago during the 1947-48 season showed that approximately 26 cents of the consumer's dollar spent for the fruit went to the Washington grower, 24 cents for services rendered at the packing plant and shipping point, 14 cents for transportation services, and 36 cents were spent for wholesaling and retailing services after the apples reached the terminal market. The margin taken for services performed at the shipping point varied from \$1.04 to \$1.42 per packed bushel of apples.

#### Advisory Committees (Title III)

Agricultural Research Policy Committee. During the fiscal year 1949 the National Advisory Committee held 4 quarterly meetings as required by the Act. The Committee reviewed work under way both in the form of oral reports at their meetings in Washington and by on-the-ground inspection.



trips to the Agricultural Research Center at Beltsville, Maryland, and to the Southern Regional Research Laboratory at New Orleans, La. The Committee was particularly helpful in recommending the fields of research and marketing service most in need of program emphasis. At the meeting held March 28 to 30, 1949 the Committee strengthened and broadened its previously adopted statement on objectives and policies under the Research and Marketing Act. The name of "Agricultural Research Policy Committee" for this group was adopted at this meeting.

Commodity and Functional Advisory Committees. During the year there were 26 meetings of the commodity and functional advisory committees, some having met twice. The meetings were for the purpose of reviewing accomplishments, making suggestions for changes in the 1950 program and outlining research needs for fiscal year 1951. The Committee members, composed of representatives of producers, processors, distributors and others, have evidenced wholehearted interest in the program. They have recommended new problem areas most urgently in need of solution and have made observations on going work helpful in securing the most fruitful use of funds available. Committee members are not compensated. They are reimbursed for travel expenses and per diem. It was decided during the year to consolidate the Soybean and Flaxseed Committee with the Peanuts Committee and the Tree Nuts Committee with the Deciduous Fruit Committee. This reduced the number of commodity and functional committees to 20, as follows:

Citrus Fruit	Grain	Sugar
Cotton	Livestock	Tobacco
Cottonseed Subcommittee	Oilseeds and Peanuts	Vegetable
Dairy	Potato	Wool
Deciduous Fruit and Tree Nuts	Poultry	Cold Storage
Dry Beans and Peas	Rice	Foreign Trade
Feed	Seed	Transportation

Research and Service Contracts (Section 10(a) and Title II). An unusual feature of the Research and Marketing Act of 1946 is the authority to contract with agencies outside of the Department for research and marketing services under Section 10(a) and Title II. It provides the means whereby the resources of private and other public research and marketing service organizations may be brought to bear on the agricultural problems which require additional knowledge for their solution. As provided in the Act, research and service contracts are used where the work can be carried out more effectively, more rapidly, or at less cost than if performed by the Department. Contract work is supplemental to and coordinated with research conducted in the laboratories of the Department. In the fiscal year 1949, 40 such contracts and 12 amendments were executed totaling \$952,684.

Further data on these contracts, including project under which the contract was let, contractor, contract objective and amount, are as follows:



Research and Service Contracts, Fiscal Year 1949  
(Sec. 10(a) and Title II)

Proj.

<u>No.</u>	<u>Project Title and Objective of Contract</u>	<u>Contractor</u>	<u>Amount</u>
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Sec. 10(a) - Utilization Research

General

- 11 Human nutritional requirements of population groups as indicated by nutritional status in relation to food intake.(BHNHE)

<u>Objective of contract:</u> To determine the fatty acid requirements of infants and small children, beginning with linoleic and arachidonic acids.	Univ.of Texas, Medical Br. Galveston,Texas	\$15,300
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<u>Objective of contract:</u> To determine the requirements of infants and small children for the essential amino acids.	N. Y.Univ., College of Medicine, Washington Sq. New York 3,N.Y.	35,000
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<u>Objective of contract:</u> To determine the dietary habits and nutritional status of negro children of early school age, as a basis for educational programs and for estimating food supply needs of the children and their families; determine the change in dietary habits of young children associated with entrance into schools with and without a school lunch program.	State Board of Education (through Agri- cultural and Industrial State College) Nashville,Tenn.	30,000
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- |   |   |        |
|---|---|--------|
| 12 Greater utilization of foods for which an expanded market is needed, with emphasis on improved household use.<br>(BHNHE) | N.Y. State<br>College of Home<br>Economics,<br>Cornell Univ.,<br>Ithaca, N.Y. | 14,000 |
|---|---|--------|

<u>Objective of contract:</u> To determine the basic methods for home cooking most suitable to different cuts of low-grade meats from grass-fed, cow and other beef animals differing in age, sex, and finish.	The University of Chicago 5801 S.Ellis Ave. Chicago 37,Ill.	10,000
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Michigan State College,Agricul- tural Experiment Sta.,E.Lansing, Michigan	4,000
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<u>Proj. No.</u>	<u>Project Title and Objective of Contract</u>	<u>Contractor</u>	<u>Amount</u>
<u>Cotton</u>			
71	Developing improved equipment and techniques for ginning and associated processes to minimize losses and increase salability of cotton and cottonseed. (BPISAF)	Battelle Memorial Institute Columbus, Ohio	\$9,100
	<u>Objective of Contract:</u> To study the application of presently unexplored methods of separation to the cleaning of seed cotton.		
102	Fundamental characteristics of cotton fiber as a means of developing entirely new uses. (BAIC)	Institute of Textile Technology Charlottesville, Va.	8,000
	<u>Objective of Contract:</u> To compare the methods of measuring "drag", using in the comparison such representative cottons as may be mutually agreed upon.		
103	Improvement in methods of cottonseed oil extraction, development of new and improved products from cottonseed and their evaluation. (BAIC)	Engineering Experiment Station Univ. of Tennessee Knoxville, Tenn.	20,000
	<u>Objective of Contract:</u> Investigation of optimum conditions for processing prime cottonseed by the hydraulic pressing method.		
104	Development of new and improved products from cotton fiber through processing and chemical treatment. (BAIC)	Fabric Research Laboratories, Inc. 665 Boylston St. Boston 16, Mass.	58,000
	<u>Objective of Contract:</u> To determine the influence of the fundamental physical properties of cotton fibers upon fabric drape; the influence of yarn and fabric geometry upon fabric drape resulting from yarn size and yarn twist also yarn crimp, fabric construction (weave), fabric density, etc.		

Proj. No.	Project Title and Objective of Contract	Contractor	Amount
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Field Crops

127	Developing industrial and other outlets for grain (alcohol, fuels, vitamins, etc.), and evaluation of development of motor fuels in experimental and full-scale engines. (BAIC)	Armour Research Foundation 35 W. Thirty-third St. Chicago, Ill.	\$12,000
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Objective of Contract: To plan and conduct a research project designed to ascertain whether there is any detrimental action by alcohol-water on lubricating properties of lubricating oils containing typical additives.

Fruits and Vegetables

44	Quality preservation in prepackaged fruits and vegetables. (BPISAE)	Western Growers Assn. 606 S. Hill St. Los Angeles 14, California	15,000 <sub>a</sub> /
	<u>Objective of Contract:</u> To determine the suitability and economic feasibility of various methods of packaging, refrigerating, and shipping vegetables from California and Arizona to terminal markets, particularly the suitability of all available moisture-proof, gas-proof, and porous plastic film for such packaging.		
241	Development of a method for measuring the raw stock maturity in frozen peas. (BAIC)	Utah Agr. Exp. Station, Logan, Utah	500 <sub>a</sub> /
	<u>Objective of Contract:</u> To produce, for experimental purposes, not less than four tons of two varieties of green peas (in pod) in each of the three seasons.		



Proj. No.	Project Title and Objective of Contract	Contractor	Amount
<u>Livestock</u>			
457	Prepackaging of retail cuts of fresh and cured meat.(BAI)	New Jersey Agr. Exp. Station New Brunswick,N.J.	\$51,500
<u>Objective of Contract:</u> (1) To ascertain the salient biochemical changes and the role of the microbial flora of meat that are involved in the deterioration of retail cuts of pre-packaged meat, (2) to devise and develop improved protective packaging methods with or without associated means for inhibiting or minimizing the deteriorative changes that occur in such products.			
<u>Wool</u>			
141	Study of fundamental characteristics of wool as a means of developing new and improved uses. (BAIC)	Textile Research Institute Princeton-Kingston Road Princeton, N.J.	75,000
<u>Objective of Contract:</u> To determine conclusively whether worsted fabrics of significantly higher quality can be produced from medium grade wools through the introduction of controlled delays between various steps in the processing.			
427	Developing and evaluating fabrics containing wool of known source and genetic origin. (BHNHE)	American Viscose Corp. 1617 Penn.Blvd. Philadelphia 3,Pa.	17,500
<u>Objective of Contract:</u> To manufacture, according to specifications for a laboratory study, 25 suitings composed entirely or partly of wools of known genetic origin, as part of an over-all project to determine the effect that replacing part of the wool with other fibers has upon the wearing qualities and consumer acceptability of the fabric.			
Total, Sec. 10(a)			\$374,900

Proj. No.	Project Title and Objective of Contract	Contractor	Amount
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Title II - Marketing Research and Services

General

- |   |   |   |         |
|---|---|---|---------|
| 31  | Consumer preference studies. (BAE)  | National Family<br>Opinion, Inc.<br>1621 Canton St.<br>Toledo, Ohio               | \$6,179 |
| Objective of Contract: To study the consumer demand for fresh citrus juices by gathering sample information which will serve as a guide to the development of the citrus juice industry.  |   |   |         |
| 163   | Measurement of costs and margins in marketing farm products. (BAE)                    | Ralph E. Loper Co.<br>Greenville, S.C.  | 45,000  |
| Objective of Contract: To prepare detailed specifications on the basis of cost engineering data and other information for ideal or model establishments for manufacturing typical kinds of cotton yarns, showing the most desirable buildings, equipment, etc., and to develop for these "ideal" mills detailed costs for the various procedures and operations of manufacturing. |   |   |         |
| 167   | Reduction of waste through improved packaging materials and loading techniques. (PMA) | Railroad Perishable<br>Inspection Agency<br>143 Liberty St.<br>New York 6, N. Y.  | 5,500   |
| Objective of Contract: To collect detailed data regarding the relative amounts of loss and damage in rail transportation associated with the use of various types of containers, loading methods and railroad cars in respect to the shipment of perishables and the development of new types of containers.  |   |   |         |
|   |   | Western Weighing &<br>Inspection Bureau<br>460 Union Station<br>Chicago, Illinois | 4,500   |
|   |   | Western Growers<br>Assn.<br>Los Angeles, Calif.                                   | 25,000  |

<u>Proj. No.</u>	<u>Project Title and Objective of Contract</u>	<u>Contractor</u>	<u>Amount</u>
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General - Continued

211	Developing and conducting educational and demonstrational work in marketing. (EXT)	Cornell University, Ithaca, N. Y.	\$33,000 <u>a/</u>
	<u>Objective of Contract:</u> To provide a food marketing service for consumers by assembling, interpreting and disseminating information about supply, movement and prices, together with information about diet, food quality and food value.	University of Massachusetts Amherst, Mass.	37,500
		University of Missouri (through Missouri Extension Service) Columbia, Mo.	27,000
326	Research for ascertaining relation of marketing outlets to prices received and paid by farmers, and for developing improved methods and procedures for collecting prices received and paid by farmers. (BAE)	Institute of Statistics N.C. State College of Agr. & Engineering of Univ. of N. Carolina Raleigh, N. C.	35,000
	<u>Objective of Contract:</u> To survey the marketing structure or channels through which farmers market their produce and purchase their supplies and to design statistical samples for securing information on prices received and prices paid by farmers; to gather price data and to devise improved methods for gathering and analyzing such data.		

Cotton

71	Developing improved equipment and techniques for ginning and associated processes to minimize losses and increase salability of cotton and cottonseed. (PMA)	Battelle Memorial Institute Columbus, Ohio	9,100
	<u>Objective of Contract:</u> To develop new principles of cleaning cotton.		



<u>Proj. No.</u>	<u>Project Title and Objective of Contract</u>	<u>Contractor</u>	<u>Amount</u>
<u>Cotton - Continued</u>			
438	Practices, methods, costs and margins on ginning cotton by cooperative gin associations. (FCA)	Douglass, Douglass, Oliver & Hughes Suite 515-19 El Paso Nat'l. Bank Bldg. El Paso, Texas.	\$150
	<u>Objective of Contract:</u> To collect data from which analyses may be made of methods, practices, size of operation, and other factors as they affect costs and margins of cooperative gins; to determine the extent to which costs and margins can be reduced.		
<u>Dairy</u>			
462	A study of the effect of certain regulatory measures upon the quality of milk. (PMA)	National Academy of Sciences 2101 Constitution Ave., N. W. Washington 25, D.C.	65,000
	<u>Objective of Contract:</u> To survey and appraise the laws and regulations, their interpretations, etc., pertaining to the sanitary control of the production and distribution of milk.		
<u>Fats and Oils</u>			
110	Effects of new oilseeds and fats and oils processing techniques on the industry, market outlets and returns to growers. (PMA)	Texas Engineering Experiment Station College Station, Texas	9,000
	<u>Objective of Contract:</u> To develop models for determining the economics of scale of the different methods used in processing cottonseed.		

Proj. No.	Project Title and Objective of Contract	Contractor	Amount
<u>Field Crops</u>			
120	Analysis of cooperative grain dealers margins and costs. (FCA)	The Kansas Farmers Service Assn. Hutchinson, Kansas	\$300 <u>a</u> /
	<u>Objective of Contract:</u> To collect data from a selected group of farmers' cooperative elevators in order that such data may be analyzed for the purpose of segregating and appraising the factors that tend to increase or decrease costs, and a report prepared on the findings of the study, so that conferences may be called with Extension officials, State farmers' grain dealers' associations, and other groups in a position to assist local cooperative elevators to develop improved policies and practices.	Kansas Farmers Union Coop. Audit Assn. Salina, Kansas Farmers Grain Dealers Assn. of Iowa Des Moines, Iowa	420 <u>a</u> / 720 <u>a</u> /
134	Develop new method and new official standards to measure bread-baking quality of wheat. (PMA)	Omaha Grain Exchange Laboratories Omaha, Nebraska	6,047 <u>a</u> /
	<u>Objective of Contract:</u> To develop new methods in measuring bread baking quality of wheat.	Doty Technical Laboratories Kansas City, Mo.  Ingman Laboratories Minneapolis, Minn.  Fisher Flouring Mills Harbor Island Seattle 4, Wash.	7,297 <u>a</u> / 7,506 <u>a</u> / 5,000
135	Determine physical and chemical changes causing flavor deterioration and staling of bakery products. (PMA)	American Institute of Baking 1135 Fullerton Ave. Chicago 14, Ill.	15,000 <u>a</u> /
	<u>Objective of Contract:</u> Study of causes and prevention of bread staling.		

<u>Proj.</u> <u>No.</u>	<u>Project Title</u> <u>Objective of Contract</u>	<u>Contractor</u>	<u>Amount</u>
<u>Field Crops - Continued</u>			
447	The function of futures trading as a means of reducing inventory risk and its consequent effects on feed costs. (PMA)	Texas Agr. Exp. Station Texas A & M College College Station, Texas	\$3,200
	<u>Objective of Contract:</u> To ascertain what use of futures markets is made by feed manufacturers in their respective areas in reducing their inventory risks and what the effect of risk reductions are on inventory policies and feed manufacturing costs.	Pennsylvania State College Agricultural Experiment Station State College, Pa.	4,500
		Illinois Agr. Exp. Station University of Illinois Urbana, Illinois	4,000
		Tennessee Agr. Exp. Station Knoxville, Tenn.	3,600
		Oregon Agr. Exp. Station Corvallis, Oregon	4,000
<u>Fruits and Vegetables</u>			
84	Merchandising products processed by horticultural cooperative associations. (FCA)	Apple Growers Assn. Hood River, Oregon	500
	<u>Objective of Contract:</u> To examine the merchandising methods of cooperatives, including distribution channels, financing, storing, transporting, advertising, labeling and pricing, to analyze distribution costs of fruit and vegetable processing cooperatives, and to analyze trade preference for kinds, varieties, grades and brands of products processed as means of expanding markets, increasing efficiency and devising improvements and originating new methods in marketing insofar as practicable.	Washington Cannery Coop. P.O. Box 30 Vancouver, Wash.	250
		Growers & Packers Coop. Canning Co., Inc. North Collins, N.Y.	350



Proj. No.	Project Title and Objective of Contract	Contractor	Amount
<u>Fruits and Vegetables - Continued</u>			
106	Improving distribution methods and practices for fruits and vegetables. (PMA)	United Fresh Fruit & Vegetable Assn. 2017 "S" St., N.W. Washington 9, D.C.	\$50,000a/
	<u>Objective of Contract:</u> To conduct training classes for retailers and their employees in effective methods of handling and selling fresh fruits and vegetables at retail stores.		
136	Prepackaging of perishable food products. (PMA)	Washington State Apple Advertising Commission, Yakima, Washington	10,000
	<u>Objective of Contract:</u> By arrangement with apple packing plants in the State of Washington for packing and shipping in consumer packages, to develop or select and test several types of containers in commercial packing and shipping operations.		
389	Survey of marketing of fruits, fruit products, and tree nuts. (PMA)	Industrial Surveys Co., Inc. 127 N. Dearborn St. Chicago, Illinois	30,000
	<u>Objective of Contract:</u> To collect and tabulate information on distribution, stocks and selling prices of fresh and processed fruits from a representative national sample of retail food stores.		
419	Using farm cooperatives in testing new equipment and developing improved procedures to reduce specific citrus margins and handling costs. (FCA)	Agricultural Exp. Station University of Florida Gainesville, Fla.	12,000
	<u>Objective of Contract:</u> To determine and demonstrate the possibility of increasing effectiveness and reducing costs of handling citrus by bulk-loading in groves, gravity-loading into coloring rooms, and palletizing and otherwise modernizing handling, loading, and transportation.		

<u>Proj. No.</u>	<u>Project Title and Objective of Contract</u>	<u>Contractor</u>	<u>Amount</u>
<u>Livestock</u>			
90	Improvement in standards for the market classes and grades of live-stock and meats. (PMA)	American Meat Institute Foundation 59 E. Van Buren St. Chicago, Ill.	\$78,000 <sub>a</sub> /
	<u>Objective of Contract:</u> To conduct tests and analyses of the histological, chemical, and organoleptic characteristics of meat considered to be associated with grade factors.		
126	Introduction of meat type hogs and improved swine carcasses for commercial distribution. (FCA)	Detroit Packing Co. 1120 Springwells Ave. Detroit, Mich.	2,000
	<u>Objective of Contract:</u> To secure detailed information regarding progress made in the development of meat-type hogs in the trade territory of the Detroit Packing Company (a farmers' cooperative); to select and make cut-out tests and carcass measurements on representative lots of hogs; and to analyze the results for purposes of developing factual information on yield, percentage of primal cuts to carcass weight, percentage of fat to lean of meat-type hogs compared with other breeds, and premiums justified by meat-type hogs.		
<u>Wool</u>			
252	Field study on preparation of wool for marketing through cooperatives. (FCA)	The National Wool Marketing Corp. 281 Summer Street Boston, Mass.	1,165
	<u>Objective of Contract:</u> To measure the effect of method of preparation of wool for market on the value of the product. To collect data and information on the conversion costs as affected by preparation for market. This information should indicate possible increases in farmer income due to better preparation of wool for market.		

Proj. No.	Project Title and Objective of Contract	Contractor	Amount
<u>Wool - Continued</u>			
461	Survey and analysis of market utilization and demand for mohair. (PMA)	Ralph E. Burgess Services, Inc. 500 Fifth Ave. New York 18, N.Y.	\$30,000b/
<u>Objective of Contract:</u> To collect and analyze information relating to the demand for and utilization of mohair.			
Total, Title II			\$577,784c/
Total of Contracts, Research and Marketing Act .....			\$952,684c/

- a/ Amendments to existing contracts.
- b/ Financed with \$20,000 of funds appropriated pursuant to Title II of the Research and Marketing Act of 1946 and \$10,000 made available by the Texas Sheep and Goat Raisers' Association.
- c/ Includes \$10,000 made available by the Texas Sheep and Goat Raisers' Association under Project 461.

List of Summary Tables

- Table I - Allotments under Section 9 of the Research and Marketing Act to State Agricultural Experiment Stations.
- Table II - Agency Summary of Obligations under Research and Marketing Act Allotments, Fiscal Years 1949, 1950, and 1951.
- Table III - Commodity Summary of Obligations under Research and Marketing Act Allotments, Fiscal Years 1949, 1950, and 1951.
- Table IV - Functional Summary of Obligations under Research and Marketing Allotments, Fiscal Years 1949, 1950, and 1951.



ALLOTMENTS UNDER SECTION 9 OF THE RESEARCH AND MARKETING ACT  
TO STATE AGRICULTURAL EXPERIMENT STATIONS

State	1949			1950		
	Direct	Regional Re-		Direct	Reg. Res:	
	Allotments:	search Fund	Total	Allotments:	Fund	Total
Alabama.....	\$76,919.41:	\$13,200.00	\$90,119.41:	118,337.56:	\$17,500:	\$135,837.56
Alaska.....	13,598.02:	---	13,598.02:	20,920.04:	---	20,920.04
Arizona.....	20,468.52:	9,450.00	29,918.52:	31,490.04:	13,050:	44,540.04
Arkansas.....	64,190.55:	15,700.00	79,890.55:	98,754.70:	24,900:	123,654.70
California....	59,421.35:	45,000.00	104,421.35:	91,417.48:	19,200:	110,617.48
Colorado.....	27,132.69:	24,575.00	51,707.69:	41,742.64:	75,225:	116,967.64
Connecticut...	23,458.99:	6,100.00	29,558.99:	36,090.76:	13,900:	49,990.76
Delaware.....	15,795.94:	1,000.00	16,795.94:	24,301.46:	---	24,301.46
Florida.....	33,115.05:	6,900.00	40,015.05:	50,946.22:	10,945:	61,891.22
Georgia.....	78,620.93:	14,800.00	93,420.93:	120,955.28:	32,050:	153,005.28
Hawaii.....	18,492.76:	---	18,492.76:	28,450.40:	---	28,450.40
Idaho.....	23,143.22:	16,500.00	39,643.22:	35,604.96:	25,000:	60,604.96
Illinois.....	68,817.22:	26,050.00	94,867.22:	105,872.66:	30,100:	135,972.66
Indiana.....	56,619.36:	22,000.00	78,619.36:	87,106.72:	47,650:	134,756.72
Iowa.....	58,426.74:	54,350.00	112,776.74:	89,887.30:	70,050:	159,937.30
Kansas.....	43,955.41:	7,850.00	51,805.41:	67,623.70:	15,950:	83,573.70
Kentucky.....	75,013.23:	6,900.00	81,913.23:	115,404.96:	9,425:	124,829.96
Louisiana.....	55,365.98:	11,500.00	66,865.98:	85,178.44:	17,700:	102,878.44
Maine.....	24,686.34:	15,670.00	40,356.34:	37,979.00:	24,600:	62,579.00
Maryland.....	29,936.10:	10,885.00	40,821.10:	46,055.54:	13,850:	59,905.54
Massachusetts:	23,238.20:	11,600.00	34,838.20:	35,751.10:	16,700:	52,451.10
Michigan.....	61,823.19:	15,000.00	76,823.19:	95,112.60:	24,150:	119,262.60
Minnesota.....	57,250.18:	19,700.00	76,950.18:	88,077.22:	27,800:	115,877.22
Mississippi...	75,266.54:	32,300.00	107,566.54:	115,794.68:	42,650:	158,444.68
Missouri.....	68,925.51:	13,734.80	82,660.31:	106,039.24:	22,950:	128,989.24
Montana.....	22,433.69:	6,800.00	29,233.69:	34,513.38:	15,950:	50,463.38
Nebraska.....	37,532.97:	9,765.20	47,298.17:	57,743.04:	19,600:	77,343.04
Nevada.....	14,130.07:	2,100.00	16,230.07:	21,738.58:	6,800:	28,538.58
New Hampshire:	17,616.28:	4,200.00	21,816.28:	27,101.98:	4,800:	31,901.98
New Jersey....	27,558.70:	14,950.00	42,508.70:	42,398.00:	21,800:	64,198.00
New Mexico....	22,602.56:	10,550.00	33,152.56:	34,773.18:	18,300:	53,073.18
New York.....	65,449.74:	57,560.00	123,009.74:	100,691.92:	68,450:	169,141.92
North Carolina:	94,261.74:	29,300.00	123,561.74:	145,018.08:	44,950:	189,968.08
North Dakota...	28,806.94:	1,800.00	30,606.94:	44,318.38:	4,400:	48,718.38
Ohio.....	74,715.21:	9,650.00	84,365.21:	114,946.50:	19,800:	134,746.50

	1949			1950		
	Direct	Regional	Re-	Direct	Reg. Res.	
	Allotments:	search	Fund :	Allotments:	Fund :	Total
Oklahoma.....	58,455.46:	8,500.00:	66,955.46:	89,931.48:	11,000:	100,931.48
Oregon.....	27,655.63:	27,700.00:	55,355.63:	42,547.16:	41,350:	83,897.16
Pennsylvania...	84,736.61:	15,235.00:	99,971.61:	130,364.04:	33,795:	164,159.04
Puerto Rico....	59,984.43:	3,500.00:	63,484.43:	92,283.74:	3,500:	95,783.74
Rhode Island...	14,067.99:	12,485.00:	26,552.99:	21,643.08:	23,400:	45,043.08
South Carolina:	57,756.29:	21,200.00:	78,956.29:	88,855.84:	34,445:	123,300.84
South Dakota...	27,896.54:	10,200.00:	38,096.54:	42,917.76:	15,900:	58,817.76
Tennessee.....	73,852.04:	12,100.00:	85,952.04:	113,618.52:	27,850:	141,468.52
Texas.....	120,598.71:	40,200.00:	160,798.71:	185,536.50:	64,800:	250,336.50
Utah.....	19,050.92:	29,545.00:	48,595.92:	29,309.12:	40,250:	69,559.12
Vermont.....	18,973.89:	2,850.00:	21,823.89:	29,190.60:	6,150:	35,340.60
Virginia.....	63,920.34:	11,320.00:	75,240.34:	98,338.98:	18,215:	116,553.98
Washington.....	33,513.03:	24,600.00:	58,113.03:	51,558.50:	39,900:	91,458.50
West Virginia..	46,587.31:	9,425.00:	56,012.31:	71,672.80:	21,800:	93,472.80
Wisconsin.....	57,216.01:	23,050.00:	80,266.01:	88,024.64:	28,850:	116,874.64
Wyoming.....	16,945.06:	8,500.00:	25,445.06:	26,069.34:	13,100:	39,169.34
				3,599,999.84:		4,844,499.84
Total...	2,339,999.59:	807,850.00:	3,147,849.59:		1,244,500:	

TABLE II

AGENCY SUMMARY OF OBLIGATIONS UNDER RESEARCH AND MARKETING ACT ALLOTMENTS  
FISCAL YEARS 1949 ACTUAL, 1950 AND 1951 ESTIMATED  
(In Thousands of Dollars)

Agency	Utilization Research Title I, Sec. 10(a)			Research other than Utilization Title I, Sec. 10(b)			Marketing Research and Services Title II						Total	
	1950		1951 Est.	1950		1951 Est.	1949		1950		1951 Est.	1949 Actual	1950	
	Actual	Est.		Actual	Est.		Actual	Est.	Actual	Est.			Actual	Est.
BAE	79.6	120	130.9	346.2	464.5	469.0	854	1,320.3	1,283.9	1,279.8	1,904.8	1,279.8	1,904.8	1,883.8
OFAR	--	--	--	--	--	--	147	192.7	193.7	147	192.7	147	192.7	193.7
EXT	--	--	--	--	--	--	452.4	623	703.1	452.4	623	452.4	623	703.1
OES	--	--	--	18	24.2	24.4	66.8	311.2	311.3	84.3	335.4	84.3	335.4	335.7
BAI	219.2	305.6	299.5	248	475.5	478.1	27	26.7	27	494.2	807.8	494.2	807.8	804.6
BDI	133.8	213	214.8	161.4	266.6	267.7	22.1	26.4	26.5	317.3	596	317.3	596	509
EPISAE	591.5	490	495.1	589.3	991.3	1,000.1	234.3	362.3	390.6	1,415.1	1,843.6	1,415.1	1,843.6	1,885.8
BEPQ	123.1	136.1	137.7	247.6	376.6	381.7	85.3	98.7	99.3	456	611.4	456	611.4	618.7
BAIC	1,753.1	2,683.1	2,794.9	--	20.4	20.6	--	--	--	1,753.1	2,703.5	1,753.1	2,703.5	2,815.5
BHINHE	583.6	762.1	738.5	59.2	74.5	75.2	--	10.3	10.5	642.8	846.9	642.8	846.9	824.2
FS	134.9	204	155.9	25.5	51	51.4	40	40.8	41.3	200.4	295.8	200.4	295.8	248.6
SCS	--	--	--	87.4	97.8	98.6	--	--	--	87.4	97.8	87.4	97.8	98.6
PMA	3.8	--	--	57	88.2	87.	2,455	2,665.9	2,624.3	2,515.8	2,754.1	2,515.8	2,754.1	2,711.3
FCA	--	--	--	19.8	31.7	32.	152	243.5	242.1	171.8	275.2	171.8	275.2	274.1
INF.	3.9	4.1	4.2	2	2.1	2.2	25.6	26.4	26.6	31.5	32.6	31.5	32.6	33
Staff Offices:														
Secretary	5.2	5.2	3.2	2	3.1	3.1	7.6	4.1	4.2	14.8	12.4	14.8	12.4	10.5
Solicitor	--	3.5	5	--	--	--	--	4	5	--	7.5	--	7.5	10
Information	3	.5	--	2	1	--	5	1	--	10	2.5	10	2.5	--
ARA	100.7	133.7	137.3	47.6	78	79.9	101.8	110.3	112.6	250.1	322	250.1	322	329.8
Payments to States, Title I, Sec. 9														
Total Obliga- tions or estimate	3,735.4	5,060.9	5,117	1,913	3,046.5	3,071	4,675.9	6,067.6	6,102	13,569.8	19,175	13,569.8	19,175	19,290



TABLE III

COMMODITY SUMMARY OF OBLIGATIONS UNDER RESEARCH AND MARKETING ACT ALLOTMENTS  
FISCAL YEARS 1949 ACTUAL, 1950 AND 1951 ESTIMATED  
(In Thousands of Dollars)

Commodity	Utilization Research Title I, Sec. 10(a)			Research other than Utilization Title I, Sec. 10(b)			Marketing Research and Services Title II			Total		
	1949	1950	1951	1949	1950	1951	1949	1950	1951	1949	1950	1951
	Actual	Est.	Est.	Actual	Est.	Est.	Actual	Est.	Est.	Actual	Est.	Est.
General	871.5	1,270.1	1,297.2	830	1,188.6	1,208.7	2,646	3,650.5	3,622.4	4,347.5	6,109.2	6,128.3
Cotton	788.9	851.9	817.7	150	213.9	213.4	122.2	182.4	173.9	1,061.1	1,248.2	1,205
Dairy	152.8	188.8	190.3	197.4	290.4	281.3	191.2	156.7	165.8	541.4	635.9	637.4
Fats & Oils	126.9	385	420.8	19.6	32.5	32.8	179.	224.5	263.5	325.5	642	717.1
Field Crops	447.6	823.6	900.1	87.2	232.9	230.4	424.3	426.9	442.2	959.1	1,483.4	1,572.7
Forest Products	224.6	304.2	257.3	--	--	--	42.3	50.4	50.9	266.9	354.6	308.2
Fruits and												
Vegetables	340	406.2	433.7	171.8	263.8	260.7	399.1	593.3	621.4	910.9	1,263.3	1,315.8
Livestock	171.3	101.6	102.5	195.3	425.4	441.6	193.9	141.2	114.6	560.5	668.2	658.7
Potatoes	92.1	101.7	102.8	65.2	76.4	77.1	42.7	78.6	79.2	200	256.7	259.1
Poultry	98.8	181	155.1	107.9	161.4	162.2	142.9	198.2	206.4	349.6	540.6	523.7
Sugar	30	63.4	61.1	20.6	51.8	52.2	51.3	50.8	46.1	101.9	166	159.4
Tobacco	43.3	47	47.2	20.1	40.6	41	41.7	50.7	50.9	105.1	138.3	139.1
Wool	249.7	216.6	209.1	--	--	--	57.1	119.7	118.6	306.8	336.3	327.7
Over-all Adm.	97.9	119.8	122.1	47.9	68.8	69.6	142.2	143.7	146.1	288	332.3	337.8
Payments to States												
Title I, Sec. 9												
Total obligations or estimate	3,735.4	5,060.9	5,117	1,913	3,046.5	3,071	4,675.9	6,067.6	6,102	13,569.8	19,175	19,290
										3,245.5	5,000	5,000

## FUNCTIONAL SUMMARY OF RMA PROGRAM AS OF DECEMBER 15, 1949

SEC. 10(a) - UTILIZATION RESEARCH

	1949 actual	1950 estimated	1951 estimated
I. <u>Developing new and improved uses</u>			
a. Fundamental studies on properties of farm products.	505,564	739,450	726,600
b. More effective use of known properties of farm products.	521,329	755,300	781,500
c. Development of improved processed products.	488,255	843,050	842,300
d. Productive use of by-products, culls, and wastes.	261,511	320,150	329,700
e. Substituting domestic farm products for other raw materials.	236,521	269,450	301,600
f. Economic appraisal of new or improved products.	118,566	191,250	228,000
Total, Financial Project I -	2,131,746	3,118,650	3,209,700
II. <u>Extending food uses through improved nutrition.</u>	414,909	578,100	552,700
III. <u>Extending uses through processing techniques and quality improvement</u>			
a. Prevention of deterioration and spoilage.	405,209	523,000	499,500
b. Developing improved processing equipment and techniques.	685,678	721,350	733,000
Total, Financial Project III -	1,090,887	1,244,350	1,232,500
Over-all Administration -	97,894	119,800	122,100
TOTAL, SECTION 10(a) -	3,735,436	5,060,900	5,117,000

SEC. 10(b) - RESEARCH OTHER THAN UTILIZATION

I. <u>Improved use of basic resources</u>	1949	1950	1951
	actual	estimated	estimated
a. Studies basic to soil and water management.	199,690	297,250	299,800
b. Genetic improvement of farm animals.	295,680	443,250	445,200
c. Culture, harvesting and curing of agronomic products.	20,566	51,800	52,200
d. Plant introduction and improvement.	100,789	174,700	176,300
e. Research in techniques of measurement.	25,397	12,250	- -
Total, Financial Project I -	642,122	979,250	973,500
II. <u>Reducing production hazards and risks</u>			
a. Minimizing crop losses from weeds, diseases and insects.	440,621	763,900	765,800
b. Minimizing animal losses from diseases and insects.	182,975	423,450	433,100
c. Reducing financial risks and property losses.	49,542	45,900	36,100
Total, Financial Project II -	673,138	1,233,250	1,235,000
III. <u>Improvement in farm buildings and facilities</u>			
a. Farm structures.	111,233	136,100	137,700
b. Farm power, machinery, and equipment.	192,910	267,000	283,800
Total, Financial Project III	304,143	403,100	421,500
IV. <u>Regional marketing research</u>	245,643	362,100	371,400
Over-all Administration -	47,942	68,800	69,600
TOTAL, SECTION 10(b) -	1,912,988	3,046,500	3,071,000



TITLE II - MARKETING RESEARCH AND SERVICES

I. <u>Basic data and information</u>	1949	1950	1951
	actual	estimated	estimated
a. Reports on supplies, prices and movement of farm products.	258,775	260,400	261,650
b. Improving market news and other market information services.	154,801	182,900	116,800
c. Promoting greater use of market information through State educational and service agencies.	160,813	207,000	207,000
Total, Financial Project I -	574,389	650,300	585,450
II. <u>Expansion of outlets for farm products</u>			
a. Development of foreign outlets.	146,977	202,900	204,000
b. Exploring opportunities for expanding domestic markets.	162,160	217,050	225,700
c. Determining consumer preferences.	167,400	214,600	216,500
d. Consumer education.	60,757	106,000	106,000
e. State service programs to expand market outlets.	336,351	426,550	427,300
f. Analyses of supply, demand, and consumption.	133,538	130,950	121,500
Total, Financial Project II -	1,007,183	1,298,050	1,301,000
III. <u>Marketing services, costs and margins</u>			
a. Analyses of marketing services.	71,170	115,800	156,500
b. Studies of pricing practices.	34,126	43,550	40,900
c. Measurement of costs and margins.	301,677	564,050	523,800
Total, Financial Project III -	406,973	723,400	721,200

TITLE II - MARKETING RESEARCH AND SERVICES (Continued)

IV. <u>Improvement in preparation and handling of farm products.</u>	1949 actual	1950 estimated	1951 estimated
a. Development and improvement of grades and standards.	474,941	471,150	472,650
b. Developing improved containers and methods of packaging.	155,861	145,800	149,400
c. Improving transportation services and equipment.	51,320	125,500	147,300
d. Economic studies of new and improved processing methods.	139,511	244,400	257,000
e. Improved storage and conditioning of farm products.	299,576	418,550	434,300
f. Quality preservation in marketing channels.	254,956	235,150	248,900
Total, Financial Project IV -	1,376,165	1,640,550	1,709,550
V. <u>Evaluation and improvement of marketing system</u>			
a. Improvement in physical plant.	245,187	271,950	243,300
b. Increasing efficiency of merchandising agricultural products.	227,932	327,800	348,000
c. Evaluation of market organization.	224,073	381,850	337,300
d. Improving marketing methods and efficiency through State educational and service programs.	471,807	630,000	710,100
Total, Financial Project V-	1,168,999	1,611,600	1,638,700
Over-all Administration	142,185	143,700	146,100
TOTAL, TITLE II -	4,675,894	6,067,600	6,102,000





OFFICE OF THE SOLICITOR

Purpose Statement

The Solicitor's Office was established in 1910 when the Congress prescribed that "hereafter the legal work of the Department of Agriculture shall be performed under the supervision and direction of the Solicitor", 5 USC 518. Until April 1, 1935 the Solicitor's Office was a unit of the Office of the Secretary at which time it was established as a separate office having bureau status.

The Solicitor's Office, as the law office of the Department of Agriculture performs all of the legal work arising from the activities of the Department.

The Office of the Solicitor represents the Secretary of Agriculture and the Administrator of the Farmers Home Administration in civil actions arising under the Farmers Home Administration Act of 1946. It represents the Secretary in proceedings before the Interstate Commerce Commission involving freight rates on farm commodities and in appeals from the decisions of the Commission to the courts. By special assignment of the Attorney General, the Associate Solicitor on Litigation represents the Department in certain classes of cases before the United States Circuit Courts of Appeals. The Solicitor serves as general counsel for the Commodity Credit Corporation and the Federal Crop Insurance Corporation, both wholly owned Government corporations supervised by the Department of Agriculture. Criminal cases arising under the programs of the Department are reviewed for the purpose of referring them to the Department of Justice. The Office of the Solicitor also represents the Department in administrative proceedings for the promulgation of rules having the force and effect of law, and in quasi-judicial hearings held in connection with the administration of various programs.

The Office of the Solicitor issues both formal and informal opinions on legal questions arising in the administration of the Department's programs, and provides a variety of other legal services, such as the preparation and review of administrative rules and regulations applicable to the public; the drafting of proposed legislation; the preparation and interpretation of contracts, mortgages, leases, deeds, and similar documents; the prosecution of patent applications by employees of the Department; the examination of titles to lands to be purchased by the Department or accepted as security for loans and the disposition of claims by and against the United States arising out of the Department's activities.

The legal work of the Office is carried on by 10 divisions in Washington, supervised by 5 associate solicitors, each having 2 divisions, the Associate Solicitor on Litigation, and the Solicitor. The work in the field is handled by 9 regional and 9 branch offices located as follows: Atlanta, Georgia (branch office in Raleigh, North Carolina); Chicago, Illinois (branch office in Milwaukee, Wisconsin); Dallas, Texas; Denver, Colorado (branch offices in Albuquerque, New Mexico, Missoula, Montana



and Ogden, Utah); Lincoln, Nebraska (branch office in St. Paul, Minnesota); Little Rock, Arkansas; Philadelphia, Pennsylvania; San Francisco, California (branch offices in Los Angeles, California, Portland, Oregon, and Honolulu, T. H.); and San Juan, P. R.

On November 30, 1949, the Solicitor's Office had 502 employees, of whom 317 were in Washington and the balance in the field.

	Estimated, 1950	Budget Estimate, 1951
Appropriated funds	\$2,401,600	\$2,890,000





Salaries and Expenses

Appropriation Act, 1950.....	\$ 2,235,500
Anticipated pay adjustment supplemental.....	38,500
Activities transferred in 1951 Estimates from "Salaries and expenses, farm housing, Department of Agriculture" for legal services in connection with the farm housing program.....	127,600
Transfers, 1950, from other appropriations (shown in detail on the next page).....	245,850
Base for 1951.....	<u>2,647,450</u>
Budget Estimate, 1951:	
Direct appropriation.....	\$2,890,000
Transferred, 1951, from "Flood control, Department of Agriculture".....	17,500
Advanced from "Administrative expenses, Commodity Credit Corporation, Depart- ment of Agriculture".....	<u>195,200</u>
Total available, 1951.....	3,102,700
Increase.....	<u><u>455,250</u></u>

SUMMARY OF INCREASES AND DECREASES, 1951

To provide for additional legal services required in connection with:

The insured mortgage program, farm ownership, and water facilities loans programs of the Farmers Home Administration.....	75,000
The farm housing program.....	192,400
Agricultural acreage allotment and marketing quota programs and the Federal Crop Insurance program.....	40,600
The Forest Service land acquisition program, Soil Conservation Service operations, and tort claims.....	26,400
Transportation of agricultural commodities, marketing orders and agreements and the extension of mandatory posting and regulation of stockyards.....	50,200
Rural electrification.....	84,800
To place on a full-year basis in 1951, pay adjustments under P. L. 429 which were in effect for only a part of fiscal year 1950.....	20,850
Decrease to eliminate funds appropriated in 1950 for legal services in connection with the rural telephone program (a Budget amendment will be submitted as soon as program requirements for fiscal year 1951 can be determined).....	- 35,000

1. The first part of the document is a list of names and addresses of the members of the committee.

2. The second part of the document is a list of the names and addresses of the members of the committee.

3. The third part of the document is a list of the names and addresses of the members of the committee.

4. The fourth part of the document is a list of the names and addresses of the members of the committee.

5. The fifth part of the document is a list of the names and addresses of the members of the committee.

6. The sixth part of the document is a list of the names and addresses of the members of the committee.



PROJECT STATEMENT  
(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950 (estimated)	Increase		1951 (estimated)
			P.L. 429 adjustment	Other	
1. Agricultural credit:	\$ 629,338	\$ 791,330	<del>6,230</del>	<del>267,400</del> (1)	\$1,064,960
2. Commodity credit, production and ad- justment programs:	329,097	392,970	<del>3,095</del>	<del>40,600</del> (2)	436,665
3. Lands, forestry, re- search, and gener- al legal services:	528,466	544,550	<del>4,290</del>	<del>26,400</del> (3)	575,240
4. Marketing and regulatory laws...	385,655	396,740	<del>3,125</del>	<del>50,200</del> (4)	450,065
5. Rural electrifica- tion and telephone programs.....	466,487	521,860	<del>4,110</del>	<del>49,800</del> (5)	575,770
Total pay adjustment costs, Public Law 429.....	<u>- - -</u>	<u>44,950</u>	<del>20,850</del>	<del>18,025</del>	<u>83,825</u>
Unobligated balance...	36,413				
Total available	2,375,456	2,647,450	<del>20,850</del> (6)	<del>434,400</del>	3,102,700
Received by transfer from:					
"Flood control, Department of Agri- culture".....	-17,000	-17,350	-150	- -	-17,500
"Salaries and expen- ses, Rural Electrifi- cation Administration, Department of Agricul- ture".....	- -	-35,000	- -	<del>35,000</del>	- -
Advanced from "Admin- istrative expenses, Commodity Credit Corporation, Depart- ment of Agriculture"...	-140,000	-193,500	-1,700	- -	-195,200
Transfer in 1951 esti- mates from "Salaries and expenses, farm housing, Department of Agriculture".....	- -	-127,600	- -	<del>127,600</del>	- -
Transfer in 1950 esti- mates from "Printing and binding, Depart- ment of Agriculture"...	-6,956		- -	- -	- -
Anticipated pay adjust- ment supplemental....	- -	-38,500	- -	<del>38,500</del>	- -
Total appropriation or estimate.....	2,211,500	2,235,500	<del>19,000</del>	<del>635,500</del>	2,890,000

## INCREASES OR DECREASES

The net increase of \$455,250 in this item for 1951 is composed of the following:

- (1) Increase of \$267,400 under the project "Agricultural credit," composed of:

- (a) An increase of \$23,290 for legal services incident to the insured mortgage program of the Farmers Home Administration.

Need for Increase: It is estimated that 3,450 mortgages for the acquisition and improvement of farms will be insured under this activity in the fiscal year 1951. This represents an increase of 1,250 insured mortgage loans which must be approved for legal sufficiency; and for which closing instructions must be issued and final opinion of title prepared by field attorneys. Additional legal problems of a more general nature are continuing to increase with the participation in the insured mortgage program of a greater number of insurance companies, banks, and other lenders.

Legal activities in connection with the preparation of amendments of State legislation containing restrictions prohibiting financial institutions from making loans of the type which may be insured under this program, legal opinions and interpretations of statute upon which private investors may make their determinations to participate in the program, development of procedures for the acquisition by the Secretary of undefaulted mortgages and the disposition of mortgages held for the account of the farm mortgage insurance fund will likewise add to the legal work in connection with this activity.

The total workload will require each attorney available for this work to handle the legal work in connection with approximately 417 insured mortgage loans.

- (b) An increase of \$51,710 for legal services incident to direct loans for the acquisition and improvement of farms under Title I of the Bankhead-Jones Farm Tenant Act and for the Water Facilities program of the Farmers Home Administration.

Need for Increase: The enactment of P.L. 361, 81st Congress will permit the extension of loan assistance by the Secretary of Agriculture under the Bankhead-Jones Farm Tenant Act and the Water Facilities Act to persons who are acquiring farms by means of homestead entry on public land, or who are purchasing farms on reclamation projects and who are otherwise eligible for such loans. This will require additional legal services to be performed by this office incident to the work of the Farmers Home Administration.

The increase of \$5,000,000 provided in the Budget for direct loans for the acquisition and improvement of farms will provide for approximately 625 additional loans, an increase of approximately 30% over the number



of loans which would otherwise be made. Attorneys must review the numerous legal instruments submitted in connection with each such loan including notes, mortgages, title documents, and related instruments, and issue closing instructions, review the evidence of closing, and prepare a final opinion of title.

The estimated increase of \$2,000,000 for the water facilities loan program of the Farmers Home Administration will permit approximately 800 additional loans to be made during the fiscal year 1951. The preparation or review of loan documents and the issuance of loan closing instructions in connection with water facilities loans pose problems not present in other loan programs, particularly matters relating to water rights. Of the 800 water facilities loans it is anticipated will be made during fiscal year 1951 approximately 40 will be group loans. Group loans, for the most part, will result in legal problems involving, in addition to the acquisition of water rights, those incident to the formation of non-profit cooperatives, cooperative organization and cooperative action as well as the real estate and chattel security problems which normally arise in connection with all water facilities loans. The major portion of the increased legal work in connection with this activity will originate in the field and will be finally performed in the regional offices.

(c) An increase of \$192,400 for legal services incident to the farm housing program.

Need for Increase: It is estimated that the Solicitor's Office will be called upon to furnish legal services in connection with the closing of approximately 26,000 housing loans and grants during the fiscal year 1951. This represents an increase of 17,000 or 189% over the estimated 9,000 loans which will be processed in this office during 1950. This will mean that each attorney available for this work will be required to handle on an average of 600 housing loans during the fiscal year 1951.

Loan and grant-making services involve the preparation and review of loan and grant agreements and related documents including vouchers, notes, chattel mortgages, real estate mortgages and appropriate forms of certifications. Legal approval of individual loans and grants will require approval of contracts and other documents, examination of title evidence to property offered as security.

Loan and grant servicing will require the preparation and approval of forms of leases, release, subordination, subrogation, the preparation of legal actions to enforce the terms of the loans, grant or security instruments, and legal assistance in the liquidation of acquired security property.

(2) Increase of \$40,600 under the project "Commodity credit, production and adjustment programs," composed of:

(a) An increase of \$26,300 for legal services in connection with the farm marketing quota programs.



Need for Increase: Acreage allotments and marketing quotas have been established for the first time since the war on the 1950 crop of cotton in addition to a continuation of allotments and quotas on the 1950 crops of tobacco and peanuts. Acreage allotments have also been established for the 1950 crop of corn, wheat and rice.

Accordingly, during the fiscal year 1951, additional legal work will be required in connection with acreage allotments and the enforcement of marketing quota programs on the 1950 crops. Additional legal work will be required during fiscal year 1951 in connection with acreage allotments and marketing quotas on the 1951 crops of possibly all 6 of the basic commodities. Also, litigation arising out of the enforcement of marketing quotas on the 1949 crop of peanuts will become heavy in the fiscal year 1951.

(b) An increase of \$14,300 for legal services incident to the Federal Crop Insurance program.

Need for Increase: The expanded Federal Crop Insurance program provides for a 50 percent increase in the program each year (over the preceding year) beginning with the 1950 crops. It is estimated that this will require an increase of \$10,800 for legal work in 1951 arising out of the expanded activity in the 1950 and 1951 crop years. The legal work performed will involve the handling of numerous contracts, regulations, and other legal documents necessary in connection with these additional programs. It is also estimated that \$3,500 will be required in connection with the anticipated increase in litigation arising out of crop insurance activities.

(3) Increase of \$26,400 under the project, "Lands, forestry, research, and general legal services," composed of:

(a) An increase of \$12,590 for legal, abstracting and title work incident to the Forest Service land acquisition programs.

Need for Increase: The proposed increase in the Forest Service land acquisition program in fiscal year 1951 will require legal services in connection with an estimated increase of approximately 225 land acquisition cases to be approved for purchase in 1951. This is approximately double the estimated number of cases to be approved for purchase in 1950.

Plan of Work: Legal services will be furnished in connection with the preparation and review of abstracts or certificates of title, the preparation and approval of title documents, the preparation of opinions and legal memoranda, the review of investigation reports and informal records, the handling of claims and necessary court proceedings, and requests for oral advice. The greater part of the work will originate in the field and be performed in regional offices.

(b) An increase of \$7,810 for legal services in connection with Soil Conservation Service operations.

Need for Increase: During the last few years the program of the Soil Conservation Service has progressed steadily. On July 1, 1949, a total of 2,164 conservation districts had been organized under the laws of the 48 States, Hawaii, Alaska, Puerto Rico, and the Virgin Islands. This is an increase of 275 over the number that had been organized on July 1, 1947. On July 1, 1949, cooperative agreements for the handling of a soil and water conservation program had been entered into with 2,086 districts. This is an increase of 330 over the number with which agreements had been entered into on July 1, 1947. This increase in the program of the Soil Conservation Service has resulted in an increased number of legal problems, such as determinations of the powers and functions of districts and other questions arising under State laws, the drafting of forms and the preparation and review of agreements and memoranda of understanding.

For the past several years no increase has been requested for the Office of the Solicitor to provide for the additional legal services required under the expanded program. The point has now been reached where the increased number of legal problems cannot be handled adequately without an increase in funds for this office. On several occasions the Soil Conservation Service has requested legal assistance which it was impossible to give because of inadequate funds. For example, as a result of a request from soil conservation district officials in several States, the Soil Conservation Service desires to have a review and study of the drainage laws of those States. Other similar requests are expected. Because of inadequate funds and personnel, it is necessary at the present time to limit this study to one State.

(c) An increase of \$6,200 for legal services incident to Tort Claims.

Need for Increase: Government claims both for and against the United States have been increasing steadily since the close of the war due to increased highway travel. It is anticipated that the incidence of accidents will continue to increase during the remainder of fiscal year 1950 and fiscal year 1951 in line with the increase of the past, which will require additional legal services. The present staff is unable to handle the volume of work and the backlog of open cases is increasing. During fiscal year 1948 there were 70 Federal Tort Claims adjusted leaving 15 pending at the close of the fiscal year; 121 were adjusted in fiscal year 1949 with 75 pending at the close of the year. At the close of fiscal year 1948 there were 225 demand cases (U. S. property damaged) open and at the close of fiscal year 1949 there were 300. Additional legal services are therefore needed to handle the increasing volume of work and to reduce the backlog of pending cases.

Plan of Work: Legal services will be furnished in connection with the drafting of determinations under the Tort law; claims in favor of the Government will be analyzed and demand letters prepared, as well as further study given if demands fail, to prepare the cases for forwarding to the Justice Department for suit. In the course of the process of litigation after reference, there is the additional work of assisting the Department of Justice by giving evidence and in



advising and otherwise maintaining contact with the bureaus as the cases progress. There is also involved, under the Tort Law, the defense of suits filed against the Government, arising out of the Department's work.

- (4) Increase of \$50,200 under the project, "Marketing and regulatory laws," composed of:

(a) An increase of \$6,300 for legal services incident to the transportation of agricultural commodities.

Need for Increase: It is estimated that the volume of legal work incident to the transportation of agricultural commodities will be at least 25 percent greater during fiscal year 1951 than during the present year. The volume of such legal work is increasing steadily due to a number of factors, some of which are the following:

In the past the Department has restricted its participation in motor transportation proceedings to revenue cases except in very unusual circumstances. The Department is now undertaking to participate actively in numerous motor carrier rate adjustment cases in addition to such revenue cases.

The Department is also presently investigating certain over-all aspects of railroad transportation which may result in the institution of formal proceedings. (In transportation proceedings a considerable period of time often expires between the institution of an investigation and the actual initiation of a proceeding. The impact of such investigations will probably be felt in this office during fiscal year 1951.)

Freight rates are at a very high level at the present time. It is anticipated that there will be vigorous attempts made to reduce the rates for individual commodities as well as the over-all rates. This will unquestionably result in numerous formal proceedings.

Various major proceedings now in the final administrative stage may require court proceedings before a final determination is had.

The full impact on this office of the work in these new fields will be felt in fiscal year 1951.

Plan of Work: Attorneys from this office will represent the Department as counsel in transportation proceedings before the Interstate Commerce Commission, the Maritime Commission, and other regulatory bodies; they will prepare pleadings, briefs, and other legal documents, examine and cross examine witnesses, present oral arguments before such bodies and take all other action of a legal nature which may be required. It is contemplated that all legal work resulting from the increased transportation activities will be performed by the Washington office.

(b) An increase of \$31,400 for legal services in connection with the administration of marketing orders and agreements.



Need for Increase: Legal services are furnished in connection with 67 marketing agreements and orders currently in effect regulating the handling of milk, fruits, vegetables, nuts, and anti-hog-cholera serum and hog-cholera virus. The number of these agreements and orders has been increasing each year and it is expected that the increase will continue at an accelerated rate during the fiscal year 1951. Larger surpluses and declining prices have resulted in a greater demand for programs of this type -- a demand which the Department has been finding increasingly difficult to satisfy because of the lack of a sufficient number of attorneys to handle the legal work required in connection with such programs. This demand will become more emphatic and the shortage of attorneys more acute with the insistence of Congress and the Department that price support payments for certain commodities be conditioned upon the existence of effective marketing agreement and order programs for such commodities.

Proceedings to issue marketing orders and the frequent amendments thereto, which are necessary to reflect changing economic conditions, are subject to the formal rule-making requirements of the Administrative Procedure Act. These proceedings are frequently lengthy and involved, requiring, on the part of the attorneys assigned to them, extensive preparation for the hearing, attendance at the hearing, analysis of voluminous hearing records, and the preparation of decisions, orders, and agreements, some of which are of great length.

There are now pending 69 court cases to enforce, or to review actions taken, under marketing agreement and order programs, and 41 adjudicatory administrative proceedings before the Department challenging the validity of provisions of orders or obligations imposed thereunder. The backlog of such cases and proceedings has been accumulating and will continue to accumulate because of the limited number of attorneys available for assignment to this work. Formal complaints of violations are being received at the rate of about 12 each month, and the evidence available to the prosecution of 30 such complaints is now awaiting review by attorneys of this office. Experience has demonstrated that, as surpluses increase and prices decline, violations increase, and stricter and more prompt enforcement action is necessary to make the programs effective. This, in turn, results in a larger number of court and administrative review proceedings. At the present rate of disposition, it may reasonably be expected that the number of court cases and administrative proceedings pending at the beginning of the 1951 fiscal year will be about 20 percent greater than it is now. Delay in the disposition of litigation and administrative proceedings arising under those programs not only invites criticism, but seriously interferes with their effective administration and frequently results in severe hardship on the part of those regulated.

(c) An increase of \$12,500 for legal services incident to the program to extend mandatory posting and regulation of stockyards.

Need for Increase: There were 207 stockyards posted under the Packers and Stockyards Act on July 1, 1949. It is estimated that 100

additional stockyards will be posted in fiscal year 1950 and 100 more in fiscal year 1951. The posting of additional stockyards will necessarily result in an increased volume of legal work due to a number of factors, including the following:

In connection with the act of posting, a notice of proposed rule making and the final posting order must be prepared for publication.

The posting of additional yards will result in the institution of additional formal rate proceedings. (Upon the posting of a stockyard, the Secretary has the responsibility of regulating the rates and trade practices of the stockyard and the market agencies operating thereat and the trade practices of the dealers operating at the stockyard. The Act requires the owner of each posted stockyard and each market agency to file with the Secretary a schedule of the rates and charges for stockyard services furnished by each person at the stockyard. If the Secretary questions the reasonableness of the rates, charges, regulations, or practices stated in the schedule, a formal rate proceeding is instituted.)

The increase in the number of posted yards will result in an increase in the number of disciplinary cases and reparation cases under the Act. (In disciplinary cases, attorneys from this office act as counsel for the Department. In reparation cases they act as presiding officers and prepare suggested findings of fact, conclusion, and order on the basis of the record of hearings.)

The number of criminal proceedings and civil cases for collection of penalties and injunctions will increase.

- (5) A net increase of \$49,800 under the project, "Rural electrification and telephone programs," composed of:

(a) An increase of \$84,800 for legal services in connection with the Rural Electrification program.

Need for Increase: A realistic appraisal of the need for additional legal services cannot be measured adequately by the size of the requested REA loan authorization of \$400,000,000 for 1951. The task of adequately protecting the security of the Government becomes greater each year. The legal problems peculiar to corporate and utility financing are increasing markedly. New problems created by the extension of service into thinner areas are requiring a greater share of the attention of the legal staff with the resultant decrease in time available for other essential legal work. Acceleration in the construction pace, as the expanded REA program of the past several years progresses physically, points to a far greater legal workload than heretofore. These considerations indicating a definite need for increased legal services are supported by the following factors:

1. The cumulative total of REA loans since the inception of the program will have risen from \$1,830,318,353 on June 30, 1949, to about \$2,250,000,000 on June 30, 1950, and to \$2,630,000,000 on June 30, 1951. The resultant increase in workload incident



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to loan security and the servicing of outstanding loans is evidenced by workload studies which indicate that during the 1949 fiscal year, 5,618 hours (exclusive of stenographic services and exclusive of the workload incident to the reamortization and refunding of obligations pursuant to the Act of September 21, 1944 which amends the Rural Electrification Act of 1936) were devoted to the servicing of outstanding loans which had aggregated \$1,381,459,261. This represents 5.8% of the total hours devoted for legal services incident to the REA program. the steady increase in legal services required for loan servicing is apparent from the following statistics:

<u>Year</u>	<u>Outstanding Loans</u>	<u>Percentum of Total Hours Required for Servicing</u>
1947	\$817,086,990	4%
1948	1,068,436,162	4.8%
1949	1,381,459,261	5.8%

2. The workload with respect to the drafting of special "tailor-made" forms of construction, engineering, materials, power, and allied contracts which are not susceptible of standard form revision, more than doubled during the 1949 fiscal year, aggregating 500 individual forms drafted as compared with 200 drafted during the prior fiscal year. In addition, numerous standard form contracts require revision of particular covenants to meet varying situations and there are an increasing number of liquidated damages cases which are requiring attention.
3. The necessity of drafting special and complex loan and security documents is increasing with recurring frequency. Contributing to this development are: (1) the power shortage in various parts of the country which necessitates joint financing agreements and unique lease operating agreements, and (2) the extension of line into more sparsely settled areas. The drafting and handling of documents to consummate such transactions require time-consuming departure from normal REA financing patterns not heretofore encountered.
4. Sharp increases in the number of land purchases for headquarters' sites, generating plants, substations, warehouses, two-way communication facilities, and other purposes will multiply the legal service workload. Illustrative of this trend is the following table:

<u>Year</u>	<u>Abstracts or Titles Examined</u>	<u>Purchase Transactions Pending</u>
1947	218	206
1948	245	300
1949	495	600



Legal services pertaining to the procurement of easements and rights-of-way are increasing correspondingly.

5. The rising trend in the workload involving legal proceedings in protection of the Government's interest, both in the courts and before State regulatory commissions is evident from the 310 cases handled during the 1949 fiscal year as compared with 190 such cases during the prior fiscal year.
6. Appropriations made available for the Solicitor's Office during prior fiscal years have not been adequate to eradicate backlogs which have accumulated with the rapid expansion of the REA program. As a result, serious time lags in preparing or reviewing legal documents essential to the REA program have been the rule rather than the exception; time lags in handling the necessary voluminous correspondence with REA borrowers and their counsel have attained critical proportions; requests for legal advice received from the REA staff have had to be handled on a priority basis; and the inability to give, to the proper extent, the technical legal advice and assistance which borrowers need in respect of their more important litigation and proceedings before regulatory commissions has necessitated the neglect of matters which often have a vital bearing on the future of the REA program in a particular state involved.

The aggregate result has been that the REA program and REA borrowers have suffered harm and inconvenience through the inability to furnish adequate legal services. Due regard to the Government's security interests in a program in which the aggregate loans since the inception of the REA program totaled \$1,830,318,853 on June 30, 1949, requires careful handling of legal problems in order to minimize risk of loss to the Government.

Plan of Work: The requested increase will permit additional attention to the elimination of backlogs in matters necessary to the preservation of the Government's security and the servicing thereof, and legal work incident to REA assistance to borrowers in operation in matters having a significant effect on the REA program as a whole or on the program in a particular State, including such vital backlogs as the examination of easement and title proofs, amendments of articles of incorporation and by-laws, interpretations of the Rural Electrification Act, and requested advice and assistance relating to litigation, contractual disputes, and regulatory commission proceedings.

(b) A decrease of \$35,000 to eliminate funds appropriated in 1950 for legal services in connection with the rural telephone program.

This is an apparent decrease only since the printed budget does not include funds for this program for fiscal year 1951 pending submission of a budget amendment as soon as program requirements can be more definitely determined.

- (6) Increase of \$20,850 to place on a full year basis in 1951 pay adjustments under P.L. 429 which were in effect for only a part of the fiscal year 1950.



OFFICE OF THE SOLICITOR

Alternate Project Statement

Project	1949	1950 Estimated	Increase (+) or Decrease (-)	1951 Estimated	1951 RMA, Section 10(a)	Total
1. Agricultural credit.....	\$629,338	\$791,330	\$273,630	\$1,064,960	—	\$1,064,960
2. Commodity credit, pro- duction, and adjustment pro- grams.....	329,097	392,970	+ 43,695	436,665	—	436,665
3. Lands, forestry, research, and general legal services.....	528,466	544,550	+ 30,690	575,240	\$5,000	580,240
4. Marketing and regulatory laws.....	385,655	396,740	+ 53,325	450,065	—	450,065
5. Rural electrification and telephone programs.....	466,487	521,860	+ 53,910	575,770	—	575,770
6. Pay adjustment costs.....	<u>—</u>	<u>44,950</u>	<u>+ 38,875</u>	<u>83,825</u>	<u>127</u>	<u>83,947</u>
Unobligated balance.....	36,413	—	—	—	—	—
Total available.....	2,375,456	2,647,450	+ 455,250	3,102,700	5,000	3,107,700
Received by transfer from:						
"Flood control, Department of Agriculture".....	- 17,000	- 17,350				
"Salaries and expenses, Rural Electrification Administration, Department of Agriculture".....	—	- 35,000				

(Continued on next page)

Project	1949	1950 Estimated	Increase (+): or Decrease (-):	Estimated	1951 RMA, Section 10(a)	Total
Advanced from "Administrative expenses, Commodity Credit Corporation, Department of Agriculture".....	-140,000:	- 193,500:	:	:	:	:
Transfer in 1951 estimates from "Salaries and expenses, Farm Housing, Department of Agriculture".....	-	- 127,600:	:	:	:	:
Transfer in 1950 estimates from "Printing and binding, Department of Agriculture".....	- 6,956:	-	:	:	:	:
Anticipated pay adjustment supplemental.....	-	- 38,500:	:	:	:	:
Total appropriation or estimate.....	2,211,500:	2,235,500:	:	:	:	:

# RMA Projects

Financial Project No.	RMA Project No.	Project Title	1949	1950 (estimated)	Adjustment for 1951	1951 (estimated)
		Section 10(a) Utilization research:				
3	—	Over-all administration.....	—	\$3,500	+ \$1,500 (a)	\$5,000

(a) An adjustment within available funds to provide an additional \$1,500 required to provide legal services in connection with research to develop new and expanded uses for agricultural products. This adjustment is to place on a full year basis during fiscal year 1951 an allotment in effect for approximately 8 months of fiscal year 1950.



# CHANGE IN LANGUAGE

The estimates include proposed change in the language of this item as follows (deleted matter enclosed in brackets):

\* \* \* Provided, however, That if the total amounts of such appropriations or authorizations for the current fiscal year shall at any time exceed or fall below the amounts estimated, respectively, therefor in the Budget for such year, the amounts transferred or to be transferred therefrom to this appropriation and the amount which may be expended for personal services in the District of Columbia shall be increased or decreased in such amounts as the /Director of the/ Bureau of the Budget, after a hearing thereon with representatives of the Department, shall determine are appropriate to the requirements as changed by such reductions or increases in such appropriations or authorizations.

The change in language deletes the words "Director of the" for the sole purpose of simplifying and shortening the wording of the item. This change will in no way affect the administrative control or authority delegated to the Director of the Bureau of the Budget.

## STATUS OF PROGRAM

General: Legal services are furnished by the Office of the Solicitor with respect to all programs carried on by the Department in every State, territory and possession, advising the Secretary and other administrative officials on legal problems arising in connection with the work of the Department. The progress and effectiveness of the many and varied programs are aided by such legal services.

The volume and scope of the activities of this office are dependent upon the programs of the Department. This office has little latitude for exercising control of the volume of legal assistance it is called upon to furnish, since this is dependent almost entirely upon the requests of administrative officials and the problems encountered in the conduct of program operations.

Current Activities and Trends: Following are brief summaries of the legal work which is illustrative of that currently performed:

### 1. Agricultural Credit.

- a. Farm Credit Programs: Advisory legal services are furnished the Governor of the Farm Credit Administration; the Commissioners, and members of their respective staffs in their day-to-day administration of the farm credit system. In cooperation with the district general counsel, this office exercises general supervision in the conduct of legal matters in the 12 Farm Credit Districts.

Important proposed legislation such as the following was drafted during the past year:

- To facilitate the acquisition of all capital stock of banks for cooperatives by borrowing cooperative associations;
- To authorize the formation of national farm loan associations in Puerto Rico, and to remove limitations upon the amounts loanable by Federal land banks;
- To permit Federal land banks to borrow direct from Federal Reserve banks; and
- To extend the benefits of old-age and unemployment insurance under the Social Security system to national farm loan association and production credit association employees.

Preliminary work was done in connection with contemplated issues of farm loan bonds by the Federal Land Banks and debentures of the Central Bank for Cooperatives. Debentures have not heretofore been issued by the Central Bank.

Another important project during the fiscal year 1949 was revision of the compilation of laws relating to the Farm Credit Administration and its supervised institutions.

In addition to the continuing legal work performed in connection with the administration of the several credit programs of the Farm Credit Administration, legal work incident to the disposal of labor supply centers, labor homes, labor camps, and the facilities and equipment in connection therewith, was performed. Also, legal assistance was given on questions in connection with the liquidation of the remaining joint stock land banks, the Federal Farm Mortgage Corporation, the Regional Agricultural Credit Corporation of Washington, D. C., (including the abolishment thereof) and the Agricultural Marketing Act Revolving Fund.

- b. Farmers Home Administration Programs: During fiscal year 1949 legal work was performed relating principally to loan making, servicing, and collection; including collection and liquidation of assets transferred to the Farmers Home Administration, particularly those of State Rural Rehabilitation Corporations, Emergency Crop and Feed Loan offices, Farm Security Administration, and Regional Agricultural Credit Corporations; compromise of indebtedness; litigation, including foreclosures, for the collection of the accounts serviced by the Farmers Home Administration; legal approval of administrative policies, procedures, instructions, forms, correspondence, drafting of legislative reports and clearance of legislative matters.

Proposed legislation was drafted pursuant to specific Congressional or Secretarial requests in connection with:

Public Law 171 -- 81st Congress, the Housing Act of 1949,  
H.R. 4800 and S 2104 -- 81st Congress, relating to the  
disposition of mineral rights,

H.R. 5592 -- 81st Congress, relating to the cancellation,  
adjustment, and collection of certain production type  
loans made by predecessor agencies of the Farmers Home  
Administration,

Public Law 72 -- 81st Congress, amending the Criminal Code  
with respect to violations against the Farmers Home  
Administration,

Public Law 99 -- 81st Congress, raising the loan limit on  
water facilities loans,

Public Law 361 -- 81st Congress, to permit extension of  
financial assistance to homestead entrymen, and

H.R. 2392, H.R. 3244, and S 930 -- 81st Congress, relating to  
the liquidation of the trusts under the transfer agreements  
with State rural rehabilitation corporation.

- c. Appellate Litigation: This office prepared briefs and collaborated with the Department of Justice in handling the following cases:

In United States Department of Agriculture v. Ky T. Hunter, the Court of Appeals for the Eighth Circuit denied the right of a purchaser of Farm Security Administration project lands



to compel the Government to convey to him the mineral interests in those lands. In Holliday v. Higbee, the Court of Appeals for the Tenth Circuit denied the right of a high bidder to compel the Government to accept his bid and convey Farm Security Administration project lands to him.

- d. The type and volume of legal work performed is indicated by the following:

Court Proceedings:

Civil Actions, Pleadings, Briefs, etc. Prepared....	480
Criminal Actions, Pleadings, Briefs, etc. Prepared.	8
Claims (Prior to Institution of Court Action) Handled	6,364
Program Proposals Reviewed.....	703
Regulations Prepared or Reviewed.....	743
Opinions and Legal Memoranda Prepared.....	11,328
Requests for Oral Advice Handled.....	5,693
Contracts Prepared or Approved.....	1,290
Abstracts or Certificates of Title Prepared or Reviewed.....	1,256
Title Documents Prepared or Reviewed.....	1,029
New Loans Handled.....	4,424
Servicing Loans, Documents Prepared or Reviewed.....	15,932
Miscellaneous Legal Documents Prepared or Reviewed...	1,362
Corporation Forms or Documents Prepared or Reviewed..	179
Miscellaneous Letters Prepared.....	13,917
Reports on Legislation Prepared or Reviewed.....	48
Legislation Drafted.....	58
Investigations, Reports and Informal Records Reviewed	3,284
Referrals of Cases to U.S. Attorneys, Dept. of Justice, Comptroller General or Treasury.....	1,983

2. Commodity Credit, Production and Adjustment Programs.

- a. Commodity Credit, Section 32 and School Lunch Programs: The legal work performed in connection with the Commodity Credit Corporation programs involved the following types of activities.

Price support programs through which the prices of various agricultural commodities were supported by loan, purchase or other operations;

Foreign purchase programs which involved the procurement abroad and sale of food, agricultural commodities and products thereof and related facilities;

Supply programs through which agricultural commodities and products thereof were procured for the purpose of supplying the United States Government agencies, foreign governments, international relief agencies, and other similar organizations;

Commodity export programs;

Liquidation (Settlement of Claims) of subsidy programs which consisted of making payments or purchases for resale at a loss for the purpose of maintaining price ceilings; and General corporate management, involving authorizations, corporate documents, financing, resolutions, organization under the new Federal Charter and closing out of the affairs of the Corporation under the Delaware charter.

Legal assistance was given in the preparation of legislation affecting the charter of the Commodity Credit Corporation, farm price support programs, and related matters.

Legal work was also performed in connection with the export, purchase, and diversion programs undertaken pursuant to Section 32 of the Act of August 24, 1935, as amended; and in connection with the administration of the National School Lunch Act, approved June 4, 1946.

Other related legal work performed by the Office involved contract settlement and renegotiation of claims against the Commodity Credit Corporation and the Department of Agriculture. Legal assistance was also rendered in connection with certain Lend-Lease plants and facilities to which the Department of Agriculture has title. The work involved the lease of such plants to private industries, their maintenance and, in some cases, their disposition by the Department.

In connection with day-to-day operation of the various programs, and in addition to the many formal opinions and memoranda written, numerous informal letters and memoranda were written or reviewed, and oral advice was given daily.

- b. Production and Adjustment: Legal services were rendered in connection with the work of the Federal Crop Insurance Corporation, the sugar quota and payment programs, the farm marketing quota programs, and the agricultural conservation and naval stores programs. In addition, during the fiscal year 1949 this office furnished legal assistance in connection with the drafting of the International Wheat Agreement and the proposed legislation submitted to the Congress to implement that agreement. Legal assistance was also furnished in connection with the recommendations of the Department on renegotiations of trade agreements and on the proposed International Trade Organization Charter.

During the fiscal year 1949, legal assistance was furnished in connection with changes in the Federal Crop Insurance Act, subsequently approved by the Congress (Public Law 268, 81st Congress), requiring a substantial amount of work, particularly in connection with the drafting of regulations and contracts relating to the 1950 crops.

This office also collaborated with the Federal Crop Insurance Corporation during the fiscal year 1949 in an extensive program of delinquent premium collections.



The work during the fiscal year 1949 was substantially increased by reason of the application of farm marketing quotas to the 1949 crop of peanuts. This work involved:

Participation in "informal" hearings regarding the provisions of the 1949 peanut marketing quota program and the regulations to effectuate that program;

The drafting and approval of regulations relating to acreage allotments for the 1949 crop of peanuts and the drafting and approval of regulations relating to the marketing of peanuts from that crop; and

Participation in a number of administrative hearings before farmers review committees with respect to appeals for review of 1949 peanut marketing quotas.

A complete revision of the marketing quota provisions of the Agricultural Adjustment Act of 1938, as amended, was drafted during the latter half of fiscal year 1949. Legislation was also drafted to extend the marketing quota provisions of that Act to most of the non-basic agricultural commodities.

- c. Appellate Litigation: This office prepared the briefs and submitted the oral arguments in the United States Court of Appeals in cases such as the following of major importance in the administration of the departmental programs:

In Pelham Oil and Fertilizer Company v. Commodity Credit Corporation, the United States Court of Appeals for the Fifth Circuit sustained the right of the Government to recover from a warehouseman the price for which peanuts had been purchased by the Commodity Credit Corporation and resold at a profit. The peanuts had been destroyed by fire before title had passed. The decision was of considerable importance in the administration of the price support program of the Commodity Credit Corporation.

In Central Roig Refining Company et al. v. Secretary of Agriculture, the United States Court of Appeals for the District of Columbia reversed and remanded an order of the Secretary allotting the direct-consumption portion of the Puerto Rican sugar quota for 1948. The opinion of the Court will have far-reaching effects upon the administration of the sugar quota program, and a writ of certiorari from the Supreme Court was sought and obtained. Oral argument in this case was heard by the Supreme Court on October 17, 1949.

This office prepared briefs and collaborated with the Department of Justice in handling cases such as the following:

In Federal Crop Insurance Corporation v. Sanborn and Squire and in Federal Crop Insurance Corporation v. Thompson, intermediate courts of appeal in California and in Texas, respectively, affirmed judgments against the Corporation upon insurance policies applicable to cotton crops. The



cases involved important questions regarding the coverage of the insurance policies and the rights of a purchaser of an interest in an insured crop.

- d. The type and volume of legal work performed is indicated by the following:

Administrative Proceedings, Rule Making.....	26
<u>Court Proceedings:</u>	
Civil Actions, Pleadings, Briefs, etc. Prepared.....	696
Criminal Actions, Pleadings, Briefs, etc. Prepared...	43
Claims (Prior to Institution of Court Action) Handled..	18,807
Program Proposals Reviewed.....	317
Regulations Prepared or Reviewed.....	441
Opinions and Legal Memoranda Prepared.....	1,229
Requests for Oral Advice Handled.....	5,691
Contracts Prepared or Reviewed.....	255
Title Documents Prepared or Reviewed.....	9
New Loans Handled.....	15
Servicing Loans, Documents Prepared or Reviewed.....	474
Miscellaneous Legal Documents Prepared or Reviewed.....	304
Corporation Forms or Documents Prepared or Reviewed....	263
Miscellaneous Letters Prepared.....	8,173
Reports on Legislation Prepared or Reviewed.....	37
Legislation Drafted.....	66
Investigations, Reports and Informal Records Reviewed..	1,517
Referrals of Cases to U.S. Attorneys, Dept. of Justice,	
Comptroller General or Treasury.....	1,156

### 3. Lands, Forestry and General Legal Services.

- a. Forestry and Lands Programs: Legal work was performed in connection with the national forest administration, Forest Service cooperative programs, land acquisition programs, submarginal land program, flood control, river basin agricultural programs, water conservation and utilization projects, and soil conservation districts program.

In addition to the continuing legal work in connection with program activities and the protection of the Federally-owned lands against trespass and depredation, a number of special problems were handled during the fiscal year 1949.

Legal assistance was rendered in the preparation and review of a new "Timber Management" part of the Forest Service Manual.

In connection with the Forest Service land acquisition program, 647 cases comprising 317,042 acres were closed by deed or included in condemnation suits and 72 applications were handled pursuant to the General Exchange Act comprising 167,467 acres offered in exchange for national forest timber or land.

Legal work was performed in connection with the installation of watershed works of improvement on the eleven flood control projects authorized by the Act of December 22, 1944, and also with

respect to a total of 67 flood control survey reports in course of preparation during the fiscal year.

- b. General Legal Services: Legal work was performed in connection with the research activities of the Department, particularly the Agricultural Research Administration, and the general legal aspects of the administrative affairs of the Department. The work on research programs included legal work of the Research and Marketing Act activities. The general legal services included fiscal and budgetary affairs, procurement, claims, personnel matters, patents, property administration and other miscellaneous legal services.

Additional legal activities assigned to this office have involved the Agricultural Remount Service and the alcohol-producing plants at Omaha, Kansas City and Muscatine, Iowa. In the liquidation of the Remount Service a number of legal problems arose in drafting legislation, leases, rights-of-way and agreements. The slump in the market for alcohol and spirits created problems in connection with the alcohol-producing plants. This slump necessitated revision and adjustment in the lease agreements with the commercial operators to avoid abandonment of the operation. In one case even after adjustment the commercial operator found it necessary to cancel its lease and cancellation of at least one other is expected. The termination of such lease operations, including the segregation and disposition of fixtures, stocks and easements, entails considerable legal service.

Work under the Research and Marketing Act necessitated intensive legal services in the preparation and approval of special research and service contracts and cooperative documents.

The adjudication of claims within the Department under the Federal Tort Claims Act continues in volume. Assistance was rendered to the Department of Justice in a large number of law suits filed under the act and particularly in handling several compromises from the Department of Justice which under the statute are payable from appropriations of the Department.

Personnel affairs have involved numerous written and oral opinions in connection with the application of the Veterans Preference Act and especially amendments to that act and to the Act of August 24, 1912; relating to the discharge of civil service personnel. Under these statutory amendments numerous appeals have been made to the Civil Service Commission on account of alleged improper discharges from the Department of both veterans and non-veterans and there have resulted several court actions against the Department to compel administrative action allegedly pursuant to these laws. The employees loyalty program instituted under Executive Order 9835 has required much assistance to the Department Loyalty Board in the analysis and investigation of disloyalty charges and assistance in the conduct of hearings in all parts of the country. This project includes the analysis of the confidential FBI reports and assistance in presenting cases



at hearings before the Board.

Work in the patent field has continued to increase under the impact of the research program of the Department. In view of the growing pressure of cases special effort has been made to avoid lapse of patent rights through the passage of time and at the same time to meet the requirements of the recent court rulings under which priority may be lost through the improper preference of cases. Special rules have been established by this office governing priority of cases in an effort to be prepared to defend the Government's position for prosecuting cases out of the normal order.

- c. Appellate Litigation: This office prepared briefs and collaborated with the Department of Justice in handling such cases as the following:

In United States v. Griffin, the Court of Appeals for the Eighth Circuit affirmed the right of the Government to an injunction restraining a trespasser from grazing cattle upon submarginal lands administered by the Soil Conservation Service.

In Aycock Lindsay Corporation v. United States, the Court of Appeals for the Fifth Circuit held that the Federal Courts have jurisdiction to entertain claims upon the United States based upon the benefit payment provisions of the agricultural conservation program. The principle is a vital one, and an appropriate case is being sought to present it to the Supreme Court.

- d. The type and volume of legal work performed is indicated by the following:

Administrative Proceedings, Adjudicatory and Rule Making.....	49
<u>Court Proceedings</u> :	
Civil Actions, Pleadings, Briefs, etc. Prepared.....	48
Criminal Actions, Pleadings, Briefs, etc. Prepared....	6
Claims (Prior to Institution of Court Action) Handled...	955
Program Proposals Reviewed.....	75
Regulations Prepared or Reviewed.....	125
Opinions and Legal Memoranda Prepared.....	2,994
Requests for Oral Advice Handled.....	6,947
Contracts Prepared or Reviewed.....	2,376
Abstracts or Certificates of Title Prepared or Reviewed.	5,767
Title Documents Prepared or Reviewed.....	3,044
Servicing Loans, Documents Prepared or Reviewed.....	45
Patent Actions Handled.....	821
Miscellaneous Legal Documents Prepared or Reviewed.....	1,031
Corporation Forms or Documents Prepared or Reviewed.....	22
Miscellaneous Letters Prepared.....	14,946
Reports on Legislation Prepared or Reviewed.....	148
Legislation Drafted.....	330
Investigations, Reports and Informal Records Reviewed...	849
Referrals of Cases to U.S. Attorneys, Dept. of Justice, Comptroller General or Treasury.....	569



4. Marketing and Regulatory Laws.

- a. Marketing and Regulatory Laws: Legal work was performed during the fiscal year 1949 in connection with marketing agreements and orders for milk, fruits, vegetables, and hog cholera virus and serum; the Perishable Agricultural Commodities Act; war food orders; Commodity Exchange Act, Federal Seed Act; Insecticide Act of 1910 and the Federal Insecticide, Fungicide and Rodenticide Act; transportation of agricultural products and farm supplies; Packers and Stockyards Act; and other regulatory statutes.

The volume of legal work in connection with marketing agreement and order programs increased substantially during the fiscal year 1949. Four new orders were made effective, 1 milk and 3 in the fruit, vegetable and nut field; in addition, 2 fruit and vegetable orders were reactivated.

Changing economic conditions and statutory changes resulted in increased legal work in connection with the amendment to existing orders, 46 amendments being promulgated during the fiscal year 1949. Additional legal work was required in connection with judicial and adjudicatory administrative proceedings. A substantial increase in the legal work was required in connection with the administration of marketing agreement and order programs including the program regulating anti-hog cholera serum and hog cholera virus due to the promulgation of additional regulations and the institution of a number of administrative proceedings.

- b. Appellate Litigation: This office collaborated with the Department of Justice in the preparation of the brief for the United States that was filed in the Supreme Court in Turner Dairy Company v. United States, 335 U.S. 813, in opposition to the petition for a writ of certiorari to the United States Circuit Court of Appeals for the Seventh Circuit. The Supreme Court denied, in accordance with the Department's contentions, the petition for certiorari. The case presents questions with respect to the sufficiency of the findings of fact by the Secretary in the issuance of a milk marketing order under the Agricultural Marketing Agreement Act of 1937. A different decision by the Court would have had an adverse and far-reaching effect upon the Department's administration of milk marketing orders in 31 metropolitan marketing areas.

This office prepared the briefs and submitted the oral argument in the United States Court of Appeals in cases such as the following of major importance in the administration of the departmental programs:

- In Dairymen's League Co-operative Association, Inc. v. Brannan, 173 F. (2d) 59, the Court sustained the Department's contentions with respect to a series of claims and controversies involving large sums of money under the New York Milk Marketing

Order, effective pursuant to the Agricultural Marketing Agreement Act of 1937. In dealing with the various questions, the Court referred to the "multifarious ramifications of the case," the "fantastic proliferation which emerges," and the "monstrous difficulty" involved in the operation of the regulations applicable to that milk market.

In Irving Weiss and Company v. Brannan, 171 F. (2d) 232, the Court sustained the Department's contentions in a disciplinary proceeding under the Commodity Exchange Act. The issues related to the requirements under the statute with respect to the records to be kept by futures commission merchants in their dealings in commodity futures. The effective discharge of the Department's responsibilities under the Act would have been seriously hampered if the Court had decided contrary to the Department's arguments.

This office also prepared and filed a brief, amicus curiae, on behalf of the Secretary of Agriculture in Interstate Commerce Commission v. Love, 172 F. (2d) 224. The United States Court of Appeals for the Fifth Circuit affirmed, in accordance with the Department's views, the decision of the District Court in 77 F. Supp. 63. The Department had a direct interest in this litigation because of the responsibility under section 203 (j) of the Agricultural Marketing Act of 1946 to assist in improving transportation services and facilities and in obtaining equitable and reasonable transportation rates for agricultural commodities. A contrary decision by the Court would have imposed many restrictions on the unlimited and prompt transportation of perishable agricultural commodities by motor vehicles in interstate commerce.

c. The type and volume of legal work performed is indicated by the following:

Administrative Proceedings: Adjudicatory.....	268
Rule Making.....	96
<u>Court Proceedings:</u>	
Civil Actions, Pleadings, Briefs, etc. Prepared.....	249
Criminal Actions, Pleadings, Briefs, etc. Prepared....	105
Claims (Prior to Institution of Court Action) Handled...	34
Regulations Prepared or Reviewed.....	506
Opinions and Legal Memoranda Prepared.....	107
Requests for Oral Advice Handled.....	3,099
Miscellaneous Legal Documents Prepared or Reviewed.....	158
Corporation Forms or Documents Prepared or Reviewed.....	14
Miscellaneous Letters Prepared.....	1,007
Reports on Legislation Prepared or Reviewed.....	24
Legislation Drafted.....	39
Investigations, Reports and Informal Records Reviewed...	484
Referrals of Cases to U.S. Attorneys, Dept. of Justice, Comptroller General or Treasury.....	337



## 5. Rural Electrification.

- a. Rural Electrification Programs: This office rendered legal services in connection with the rural electrification program during the fiscal year 1949. The legal problems presented in this connection were related generally to: (1) Rural Electrification Administration loans and the Government's security therefor; and (2) operations of the Rural Electrification Administration borrowers.

Acceleration of the REA program during the fiscal year 1949 resulted in an increase in the number and scope of legal problems during the year. Among the factors which produced the resultant increase in the total legal work load were the following:

A record-breaking total of approximately \$450,000,000 in new REA loans made during the fiscal year; the legal problems incident to servicing the Government's security for outstanding loans; the increased volume of construction and engineering contracts; and efforts to reduce backlogs of legal work - all these tended to increase the legal work load during 1949 in greater proportion than the increase in loan funds itself would appear to indicate;

The nation-wide power shortage, aggravated by the continued increase in the farm use of electricity has resulted in an increase in the number of generation and transmission loans, with a consequent increase in the number of complex legal questions submitted to this office for opinions;

Unusual legal problems were encountered as the rural electrification program moves on to complete the rural electrification job, on an area-coverage basis in the less densely populated areas - particularly in the Great Plains and Western States. Here, low consumer density, shortage of generating and transmission capacity, and similar factors operate not only to increase the volume of legal work but also to render the individual tasks more complex;

Efforts by opponents of the rural electrification program to impede or prevent the extension of facilities to unserved persons in rural areas have continued unabated and have necessitated increased legal assistance of a consulting nature to the REA borrowers concerned.

The foregoing factors illustrative of the increase in the legal work of this office have, in part, been accomplished through extensive procedural changes and revisions of work methods promulgated during the previous year. Additional methods of simplification and revision of documents are being explored constantly and an objective production control system has been adopted to expedite the flow of legal work. Only through extreme diligence on the part of the legal staff and through constant efforts to improve working efficiency has this office been able to keep within distance of the expanded rural electrification program.



While some indication of the type and scope of this legal work in the fiscal year 1949 is given by the statistics which follow, the amount of oral advice and assistance which the office rendered the Rural Electrification Administration is not adequately reflected therein. The expansion of the work of the Rural Electrification Administration during the fiscal year 1949, arising as it did in connection with the operations of approximately 1,000 borrowers, resulted in a tremendous increase in the day-to-day problems handled directly with the Rural Electrification Administration staff by personal conferences and by telephone.

b. The type and volume of legal work performed is indicated by the following:

Program Proposals Reviewed.....	1,836
Regulations Prepared or Reviewed.....	123
Opinions and Legal Memoranda Prepared.....	1,247
Requests for Oral Advice Handled.....	10,096
Contracts Prepared or Reviewed.....	1,702
Abstracts or Certificates of Title Reviewed.....	832
Title Documents Prepared or Reviewed.....	681
New Loans.....	808
Servicing Loans; Documents Prepared.....	978
Miscellaneous Legal Documents Prepared or Reviewed....	119
Corporation Forms or Documents Prepared or Reviewed...	10,591
Miscellaneous Letters Prepared.....	4,356
Reports on Legislation Prepared or Reviewed.....	127
Legislation Drafted.....	90
Investigations, Reports and Informal Records Reviewed.	16

OFFICE OF THE SOLICITOR

Functional Summary of RMA Projects Carried Out Under Title II

Functional Classification	1949	1950 (estimated)	Adjustment for 1951	1951 (estimated)
MARKETING RESEARCH AND SERVICES				
Over-all Administration.....	—	\$4,000	+ \$1,000 (a)	\$5,000

(a) An adjustment to provide an additional \$1,000 for legal services in connection with research, services, and educational work in marketing. This adjustment is to place on a full year basis during fiscal year 1951 an allotment in effect for approximately 8 months of fiscal year 1950.





STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS AND WORKING FUND  
(Amounts shown include pay adjustment costs)

Item	Obligations 1949	Estimated obligations 1950	Estimated obligations 1951
Disaster loans, etc., revolving fund,	:	:	:
Department of Agriculture (Allotment to Office of the Solicitor):	:	:	:
Legal services in connection with disaster loans, fur loans, and the liquidation of the Regional Agricul- tural Credit Corporation assets.....	—	\$15,000	\$ 15,000
Research and Marketing Act of 1946,	:	:	:
Department of Agriculture (Allotment to Office of the Solicitor):	:	:	:
Legal services incident to research and marketing activities.....	—	7,500	10,000
Working Fund, Agriculture (Office of the Solicitor) Advance from:	:	:	:
Bureau of Animal Industry:	:	:	:
For the services of such qualified legal personnel to assist in the program for the control of foot- and-mouth disease conducted cooper- atively by the United States and the Republic of Mexico as may be mutually agreed upon.....	\$9,664	15,000	—
Expenses, Economic Cooperation Adminis- tration, Executive Office of the Presi- dent (Allotment to Agriculture), (Allotment to Office of the Solicitor):	:	:	:
Legal services in connection with the Economic Cooperation Administration Program.....	49,207	50,000	—
Salaries and Expenses, Surplus Property Disposal, General Services Adminis- tration (Allotment to Agriculture), (Allotment to Office of the Solicitor):	:	:	:
Legal services in connection with the disposition of surplus agricultural and forestry lands.....	10,448	3,700	—
TOTAL, OBLIGATIONS UNDER ALLOTMENTS AND WORKING FUND.....	69,319	91,200	25,000



OFFICE OF INFORMATION

Purpose Statement

The Office of Information was established under its present name in 1925 as a consolidation of functions formally organized as early as 1889, to coordinate in the Department the dissemination of information useful to agriculture as authorized by the Act establishing the Department of Agriculture in 1862.

The Office has general direction and supervision of all publications and other information policies and activities of the Department, including the editorial work, illustrating, printing and distribution of publications, clearance and release of press, radio, and magazine materials, and the preparation and distribution of exhibits and motion pictures. The Office publishes the Yearbook of Agriculture, the annual report of the Secretary of Agriculture, handles all the details of distributing farmers bulletins allotted to Members of Congress, and services letter and telephone requests for general information received in the Department. It also produces motion pictures for department agencies on funds transferred for this purpose, and produces pictures for other government agencies under arrangements for reimbursement.

Regular employment as of November 30, 1949 totalled 184. The Office has no field employees, except part-time or day workers for seasonal use in displaying exhibits at State fairs and similar agricultural activities.

	Estimated, 1950	Budget estimate, 1951
Appropriated funds	\$1,261,328	\$1,290,800

*Submitted  
in record*

*Compliments: Re Republic  
work & publications.*

*Inquiry re television (Whitten)*

*Specimen: Finance in Farming papers?  
RMA report 1950?  
Revenue increase over 1950? and 1949?*



Salaries and Expenses

Appropriation Act, 1950 .....	\$1,248,728
Anticipated pay adjustment supplemental .....	12,600
Transfer in 1950 from Commodity Credit Corporation .....	16,000
Transfer in 1950 to Bureau of Human Nutrition and Home Economics .....	-10,000
Base for 1951 .....	1,267,328
Budget estimate, 1951:	
Direct Appropriation .....	\$1,290,800
Transfer from Commodity Credit Corporation .....	16,200
Increase .....	<u>1,307,000</u>
	<u>+39,672</u>

SUMMARY OF INCREASES, 1951

To provide adequate printing and inquiry service on acreage allotment and marketing quota programs .....	+9,937
To plan and coordinate information activities on farm housing .....	+15,535
To provide the amount, transferred in fiscal year 1950 to the Bureau of Human Nutrition and Home Economics for preparation of a food and nutrition handbook, which will be required under this item to meet the full annual cost of printing the Agriculture Yearbook .....	+10,000
To place on a full-year basis in 1951, pay adjustments under P. L. 429 which were in effect for only a part of the fiscal year 1950 .....	+4,200

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950 (estimated)	Increase or decrease		1951 (estimated)
			P.L. 429 adjustment	Other	
1. General admin- istration of Office of Infor- mation and of informational work .....	\$30,337	\$30,779	+\$214	- -	\$30,993
2. Business service, in- cluding commu- nications and records .....	65,407	60,190	+704	- -	60,894
3. Publications preparation, distribution and control ..	533,084	558,266	+1,557	+\$21,472(1)	581,295
4. Preparation and distribu- tion of special reports and current infor- mation .....	294,414	363,227	+168	+14,000(2)	377,395

(Continued on next page)

Project	1949	1950 (estimated)	Increase or decrease		1951 (estimated)
			P.L. 429 adjustment	Other	
5. Preparation and distribution of agricultural information by exhibits .....	109,921	109,045	+914	--	109,959
6. Preparation and distribution of agricultural information by radio	35,559	35,358	+106	--	35,464
7. Preparation and distribution of agricultural information to the press .....	56,182	51,981	+319	--	52,300
8. Preparation and distribution of agricultural information by motion pictures	153,718	58,482	+218	--	58,700
Total pay adjustment costs, Public Law 429	[- -]	[13,095]	[+4,200]	[+972]	[18,267]
Unobligated balance .....	2,267	--	--	--	--
Total available	1,280,889	1,267,328	(3)+4,200	+35,472	1,307,000
Transfer from "Administrative Expenses, Commodity Credit Corporation"	-15,264	-16,000	-200	--	-16,200
Transfer in 1950 estimates from "Printing and Binding, Department of Agriculture"	-558,717	--	--	--	--
Transfer to "Salaries and Expenses, Bureau of Human Nutrition and Home Economics"	--	+10,000	--	-10,000	--

(Continued on next page)

Project	1949	1950 (estimated)	Increase or decrease		1951 (estimated)
			P.L. 429 adjustment	Other	
Transfers from					
other appropri-					
ations for pro-					
duction and					
distribution of					
motion pictures					
as shown in					
detail in					
budget sched-					
ules .....	-98,658:	- - -	- - -	- - -	- - -
Anticipated pay					
adjustment					
supplemental ..	- - -	-12,600:	+12,600:	- - -	- - -
Total appropria-					
tion or esti-					
mate .....	608,250:	1,248,728:	+16,600:	+25,472	1,290,800

#### INCREASES

The increase of \$39,672 in this item for 1951 consists of the following:

(1) Increase of \$21,472 under the project "Publications preparation, distribution and control," composed of:

(a) Increase of \$9,937 to provide adequate printing and inquiry service on acreage allotment and marketing quota programs.

Need for Increase: Expansion of the acreage allotment and marketing quota program in 1950 and 1951 means a sharp increase in printing procurement in connection with these programs. Because the harvesting periods of crops differ, a portion of the printing for quotas applicable in 1950 will be procured within the fiscal year 1951. In addition, quota programs on possibly all six basic commodities on the 1951 crop will increase the printing procurement in the fiscal year 1951. Procurement of forms, schedules, marketing cards, ballots and program explanation materials to carry out effectively a marketing quota program is particularly difficult and time-consuming. To review, plan the printing, follow-up, and insure delivery of marketing quota printing orders involves about three times the effort and time required for the average printing order.

In addition to printing service, marketing quota programs effective in 1951 are expected to bring about an increase of about 4 percent in requests for marketing quota publications and for information related to marketing quotas either by telephone or letter.



Plan of Work: The special problems involved in printing marketing quota materials will require the services of a printing technician trained in estimating "job" printing. This technician would devote special attention to marketing quota work and do advance planning of these speciality jobs, including such arrangements to secure printing under contract as may be necessary to secure printing and delivery at lowest cost.

(b) Increase of \$11,535 for planning and coordinating information activities on farm housing and farm buildings.

Need for Increase: It is anticipated that results of economic research on farm housing and other farm building needs will become available in 1951. Likewise, research and technical studies on planning, economy and efficiency of construction for farm housing and buildings will have advanced to the stage that preliminary publications should be available for general inquiry requests by 1951. Manuscripts for publications including suggested farm house and building plans will also be proposed for editing, illustrating and printing in that year.

Information Activities Dependent on Research: With the basic research data in the development stage in 1950, there will be in 1951 positive guides as to need for the different kinds of information materials that will be effective in certain geographic areas, and guides as to the amount of information effort that will be required by the several Department agencies participating in the farm housing program. This will provide a sound basis for the necessary planning and coordination of farm housing information activities. Farm housing information materials will involve more illustrations than are usual in Department publications, which will entail extra effort in planning materials for effective use.

Press and Radio Service: There will be a cumulative added workload of housing information for press release and for radio reporting, in addition to requests from national and trade magazines for special service.

Requests for Information: Requests from Congressional offices by telephone and letter concerning housing matters are expected to become numerous early in the 1951 fiscal year. General information inquiries and requests for farm housing publications will increase as progress reports are made through the press, the radio, and national, trade and farm magazines. It is estimated that such requests will increase the workload about 10% during 1951.

Plan of Work: The work will affect the press, radio and special reports divisions of the Office as a net addition to regular work planned for the fiscal year 1951, requiring the equivalent of about seven months full-time work of an information specialist. The additional workload of editing, illustrations work, and printing preparation will involve flexible use of staff in reviewing the more difficult subject matter, layout, plan detail, and illustrations in farm house and building plan publications. Requests for information and publications on farm housing will be handled in the regular work flow of requests for information

on all other subject matter, with necessary shifts of personnel to meet workload peaks as the additional requests are received. Of the total increase of \$15,535 for farm housing activities, it is proposed to include \$11,535 under Project 3 and \$4,000 under Project 4.

(2) Increase of \$14,000 under the project "Preparation and distribution of special reports and current information" composed of:

(a) Increase of \$4,000 for special reports and current information on farm housing as described in item 1 (b) above.

(b) Increase of \$10,000 in funds available under this item to restore in fiscal year 1951 the full amount for annual printing of the Agriculture Yearbook, transferred in 1950 to Bureau of Human Nutrition and Home Economics for preparation of a food and nutrition handbook.

Need for Increase: In 1950, funds usually available to the Office of Information for printing the Agriculture Yearbook were adjusted to provide for reprinting of "Grass" (the 1948 Yearbook) and for work on a new Food and Nutrition Handbook, including a transfer of \$10,000 to the Bureau of Human Nutrition and Home Economics for preparation of the handbook. The estimated cost of the proposed printing of a new Yearbook in 1951 and reprinting of the handbook, compared with 1950, are as follows:

Basic 1951 Needs:

1950-51 Agriculture Yearbook, "New Uses For Agricultural Products" .....	\$243,000
Food and Nutrition Handbook, reprint of 1,100,000 copies ...	75,128
Sub-total .....	318,128

The 1950 Appropriation provided as follows:

Reprint of 1948 Yearbook "Grass" .....	\$156,674	
Preparation, printing and distribution		
of Food and Nutrition Handbook .....	166,054	
Sub-total of appropriation items .....	322,728	
Less: Distribution of expenses absorbed		
in Project 3 .....	-4,600	
Direct transfer to Bureau of		
Human Nutrition and Home Economics		
for preparation of Food and Nutri-		
tion Handbook .....	-10,000	\$308,128
Additional funds required under this item for 1951		
basic needs .....		10,000

Plan of Work: Yearbook funds would be used to print 230,850 copies of a new 1950-51 volume on "New Uses For Agricultural Products," for distribution by Members of Congress. The expectation that 1,100,000 copies of the Food and Nutrition Handbook should be reprinted in 1951 is based on previous experience with a similar type of cookbook, "Aunt Sammy's Radio Recipes." It is anticipated that the new Handbook will be equally popular.

(3) Increase of \$4,200 to place on a full year basis in 1951 pay adjustments under P. L. 429 which were in effect for only part of the fiscal year 1950.



## Alternate Project Statement

Project	1949	1950 Estimated	Increase (+) or Decrease (-)	1951 Estimated	1951 RMA		Grand Total
					Section : 10(a)	Section : 10(b)	
1. General administration of Office of Information and of informational work:	30,337	30,779	+ 214	30,993	- -	- -	30,993
2. Business service, in- cluding communications and records.....	65,407	60,190	+ 704	60,894	- -	- -	60,894
3. Publications preparation, distribution and control..	533,084	558,266	+23,029	581,295	4,200	2,200	587,695
4. Preparation and distri- bution of special reports and current information..	294,414	363,227	+14,168	377,395	- -	- -	377,395
5. Preparation and distri- bution of agricultural information by exhibits...	109,921	109,045	+ 914	109,959	- -	- -	109,959
6. Preparation and distri- bution of agricultural information by radio.....	35,559	35,358	+ 106	35,464	- -	- -	35,464
7. Preparation and distri- bution of agricultural information to the press..	56,182	51,981	+ 319	52,300	- -	- -	52,300
8. Preparation and distri- bution of agricultural information by motion pictures.....	153,718	58,482	+ 218	58,700	- -	- -	58,700

(Continued on next page)



Project	1949	1950 : Estimated:	Increase (+) or Decrease (-):	1951 : Estimated:	1951		Grand Total
					PMA		
					Section 10(a)	Section : Total 10(b)	
Pay Adjustment Costs, Public Law 429.....	[ 2-7 ]	[ 13,095 ]	[ 75,172 ]	[ 18,267 ]	[ 100 ]	[ 200 ]	[ 18,467 ]
Unobligated balance.....	2,267	- -	- -	- -	- -	- -	- -
Total available.....	1,280,889	1,267,328	439,672	1,307,000	4,200	2,200	6,400 : 1,313,400
Transfer from "Administra- tive expenses, Commodity Credit Corporation".....	- 15,264	- 16,000	- 200	- 16,200			
Transfer in 1950 estimate from "Printing and bind- ing, Department of Agri- culture".....	-558,717	- -	- -	- -			
Transfer to "Salaries and Expenses, Bureau of Human Nutrition and Home Eco- nomics, Agricultural Re- search Administration"....	- -	10,000	-10,000	- -			
Transfers from other ap- propriations for produc- tion and aistribution of motion pictures as shown in detail in budget schedules.....	- 98,658	- -	- -	- -			
Anticipated pay adjustment supplemental.....	- -	- 12,600	412,600	- -			
Total appropriation or estimate.....	608,250	1,248,728	442,072	1,290,800			

# RMA Projects

Finan- cial Project No.	RMA Project No.	Project Title	1949	1950 :(estimated)	Adjustments for 1951 Public Law 429	1951 :(estimated)
3	399	Section 10(a) Utilization research: pertaining to projects under the Research and Marketing Act.....	\$3,903	\$4,100	4100	\$4,200
3	399	Section 10(b) Research other than utilization: Informational activities.....	1,994	2,100	4100	2,200
		Total, RMA.....	5,897	6,200	4200	6,400

### CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

- \* \* \* for farmers' bulletins, which shall be adapted to the interests of the people of the different sections of the country, an equal proportion of four-fifths of which shall be delivered to or sent out under the addressed franks furnished by the Senators, Representatives, and Delegates in Congress, as they
- 1 shall direct (7 U.S.C. 417) and [for reprinting the 1948 Department of Agriculture Yearbook, "Grass," for the use of the Senate and the House of Representatives, respectively, in the ratio of one hundred and ten thousand to three hundred and sixty thousand copies (of which not to exceed \$156,674 shall be available for the yearbook reprint for such use), and including \$166,054 for the preparation, printing, and distribution of a homemakers' food and nutrition handbook, of which \$10,000 shall be transferred to the appropriation "Salaries and expenses, Human Nutrition and Home Economics, Agricultural Research Administration," for the preparation of such handbook, \$615,728: Provided, That four hundred thousand copies of the homemakers' food and nutrition handbook shall be for the use of the Department and the remainder shall be for the Senate and the House of Representatives, respectively, in the same ratio as farmers'
  - 2 bulletins] not less than two hundred thirty thousand eight hundred and fifty copies for the use of the Senate and House of Representatives of part 2 of the annual report of the Secretary (known as the Yearbook of Agriculture), as authorized by section 73 of the Act of January 12, 1895 (44 U.S.C. 241), \$611,128:
  - 3 Provided [further], That if the total amounts of the appropriations or authorizations for the current fiscal year from which transfers to this appropriation are herein authorized shall at any time exceed or fall below the amounts estimated, respectively, therefor in the Budget for such year, the amounts transferred or to be transferred therefrom to this appropriation and the amount which may be expended for personal services in the District of Columbia shall be increased or decreased in such amounts as
  - 4 the [Director of the] Bureau of the Budget, after a hearing thereon with representatives of the Department, shall determine are appropriate to the requirements as changed by such reductions or increases in such appropriations or authorizations: \* \* \*

The first change in language is proposed to delete the non-recurring provision contained in the 1950 Agricultural Appropriation Act for the reprinting of the 1948 Yearbook "Grass" and the preparation, printing, and distribution of the Food and Nutrition Handbook.

The second change in language is proposed to provide authority for the printing of a full edition of a new Yearbook for 1950-51, on the same plan as used for printing the 1949 Yearbook.



The third change in language deletes the word "further", since the preceding proviso is proposed for deletion under the first language change.

The fourth change in language deletes the words "Director of the" for the sole purpose of simplifying and shortening the wording of the item. This change will not affect the administrative control or authority delegated to the Director of the Bureau of the Budget.



STATUS OF PROGRAM

*Include in Record*  
112-116

Current Activities: The primary functions of the Office of Information are (1) overall coordination of all information work in the Department and (2) final editing and clearance of all publications and releases of information to the public. The Office provides a service to the Department and its constituent agencies designed to assist farmers, organizations and institutions interested in agriculture, and the public at large, by providing factual information on results of agricultural research work, trends in agricultural production, prices, and consumption, the scope of agricultural programs and policies, and similar information which will assist farmers and the public to obtain useful knowledge pertaining to the nation's agriculture. This work involves:

1. Editing and final preparation of manuscripts for publication, and procurement of necessary printing;
2. Distribution of publications through established channels and the filling of requests for publications and general information;
3. Preparation and shipping of exhibits for showing at State fairs and other expositions;
4. Production of agricultural films and their distribution to State depositories for use by Department of Agriculture field workers and extension agents;
5. Final clearance and distribution of reports and releases to the general press, and to the agricultural scientific and trade press;
6. Preparation of radio information for broadcast and service to radio farm program directors and extension agents;
7. Compilation and editing of the Agriculture Yearbook and the Annual Report of the Secretary of Agriculture; and
8. Preparing and assisting in the preparation of information requested by publishers of national magazines, encyclopedias, annuals, etc., on departmental programs, organization, or operation.

Examples of Services Rendered:

1. Requests for Information: Requests for general information and publications in 1949, compared with previous years, were as follows (excludes requests for specific technical services):



1947	767,398	254,718
1948	812,738	360,959
1949	775,404	328,101

Requests for 1950 are estimated at 835,000, including 315,000 requests from Congressional offices.

2. Publications activities: 1,366 manuscripts and reprints were edited and prepared for printing in 1949, compared with a total of 1,409 in 1948. Extensive editing and revision of the Agriculture Yearbook was required to come within estimated available funds. Special editing and illustrations work was required to prepare for publication a major revision of the "Manual of Grasses." For the better organization and control of Department publications, they have been reclassified in nine series (bulletins, circulars, leaflets, etc.). This will entail considerable adjustment of publication lists and increased correspondence with libraries and institutions that receive the material.
3. Printed bulletin stocks: To provide reprints of Farmers' Bulletins and other material distributed by Members of Congress requires the maintenance of ample inventories. Stocks at the beginning of recent fiscal years have been low as compared with annual distribution requirements, but some improvement was effected in 1949:

Farmers' Bulletins and Leaflets		All Publications	
Fiscal Year	Initial stocks	Distribution	Initial Stocks : Distribution
1947	5,401,240	6,641,305	15,300,576 : 39,132,941
1948	3,148,923	6,197,922	10,545,596 : 30,795,779
1949	2,541,804	5,689,175	10,756,216 : 27,038,799
1950	3,780,312	6,500,000(Est)	11,984,746 : 29,000,000(Est)

The 1950 stocks of Farmers' Bulletins approximate one-tenth of the accumulated quotas of Members of Congress.

4. Printing Management: In estimating the cost of printing work for the guidance of Department agencies, the Office has opportunity to effect economies in the planning of format, make-up, and paper stock. Savings of this type cannot readily be estimated, although recorded savings of \$7,778 were made on printing jobs in 1949. It is planned to continue to assist agency personnel on general printing problems, government printing controls and procurement operations, and similar matters, to assist agencies in attaining full value for printing funds. Printing jobs reviewed and requisitioned in 1949 totaled 4,062, compared to 3,629 in 1948, and 3,171 in 1947.

5. Agricultural Exhibits: Showings of full-sized exhibits at 25 State and interstate fairs are planned for 1950. Seven new exhibits have been completed and 6 established exhibits were extensively revised to include new subject matter. Carload groupings of exhibit materials are available under the following titles:

Group 1 - Conservation of Farm and Forest	6 units
Group 2 - Livestock, Crops and Farm Machinery	6 units
Group 3 - Livestock and Forage	8 units
Group 4 - Special 4-H Club Group	13 units
Group 5 - Better Living on the Farm	7 units
Group 7 - Livestock and Roughage	6 units
Group 8 - Domestic Enemies - Guard Against Them	8 units
Group 9 - Dairying and Poultry Raising	8 units
Group 10 - Conservation - Soil and Water No. 1	13 units
Group 11 - History of American Agriculture	9 units
Group 12 - Conservation - Soil and Water No. 2	13 units
Group 13 - Farm and Home Special	7 units

Showings of 23 smaller exhibits are planned for agricultural organization meetings, international conferences, and special events in the Department. In 1949 600 window displays, 30 carry-case exhibits, 4 medium-sized portable exhibits, and similar items were produced for various agencies of the Department.

6. Motion Picture Service: The Office performs work on all phases of the production of motion pictures. Films released in 1949 were produced on a reimbursable basis for several agencies of the Department, under authorization provided in the annual appropriation act, and for other Federal and State agencies. Total production, including job work, film development, sound accompaniment, etc., was as follows:

	<u>Complete Films</u>	<u>Partial Releases</u>	<u>Total No. of Reels</u>
Department agencies	8	8	26
Other government agencies	20	8	51
Cooperating State agencies	---	4	10
Totals	<u>28</u>	<u>20</u>	<u>87</u>

In addition, 28 short films ( $\frac{1}{2}$  reel) for television use were produced for other Government agencies on a reimbursable basis.

Distribution of Department films, for use by extension agents and others, is accomplished largely on a cooperative basis through 72 State depositories, usually State colleges and other educational agencies. Sales of films are handled by a private firm under government contract.

1948	14,000,000	2,974	"
1949	14,000,000	2,900	"

7. Press Service: Requests for current information and releases approximate 55,000 per year. To handle this volume as expeditiously as possible 2,760 releases and reports were issued in 1949, involving review and editing of text, scheduling of release dates, preparation of stencils and distribution of material through appropriate channels. Other services include:

- a. Distribution of a Daily Summary and a Weekly Summary, to avoid the extra burden and expense of supplying larger aggregate numbers of copies of individual releases which the summaries review in digest form.
- b. The weekly Clip Sheet describes departmental research for scientific and other publications and writers who request it.
- c. Food and Home Notes are prepared weekly for women's pages and women's magazines; available also to 818 radio stations and to others who are engaged in distributing food and home information, including State extension editors and county home demonstration agents.
- d. The Weekly Letter provides information for farm and livestock journal editors on new developments in program research work of Department and cooperating agencies. Editors and writers may also secure, on request, agricultural pictures.

8. Radio Service: Attention given to the spread of agricultural information by radio consists mainly of systematic cooperation with radio networks and with individual stations maintaining farm service departments. This work is supplemented by participation in workshop and conference programs held by agricultural agencies and the radio industry. Increasing requests for cooperation and assistance in television work are being received from networks and station program representatives, as well as from State Extension services and Department officers.

Major activities include:

- a. Assistance in producing such network programs as NBC's National Farm and Home Hour, ABC's American Farmer, and CBS's Country Journal.
- b. Publication of a weekly "background" letter for 640 radio farm directors, county agricultural agents, and other agricultural officials dealing with national and international agricultural developments.



- c. Through 235 radio releases distributed through State extension editors the Farm Flash Service was made available to about 600 local radio stations..
- d. Extension service and Department workers were instructed in radio techniques at 3 workshop meetings, and the Office also participated in 9 other workshop and professional meetings.

1. The first part of the paper is devoted to a general discussion of the problem of the origin of life. It is shown that the problem is one of the most important and most difficult in the history of science.

2. The second part of the paper is devoted to a detailed discussion of the problem of the origin of life. It is shown that the problem is one of the most important and most difficult in the history of science.

OFFICE OF INFORMATION

Functional Summary of RMA Projects Carried Out Under Title II

Functional Classification	1950		Adjustments for 1951		1951
	1949	:(estimated)	Public Law 429	:(estimated)	
MARKETING RESEARCH ACT SERVICES	:	:	:	:	:
I. Basic data and information:	:	:	:	:	:
b. Improving market news and other market	:	:	:	:	:
information services.....	25,582	26,400	4200	:	26,600
	:	:	:	:	:





STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS, TRUST FUNDS, AND WORKING FUNDS  
(Amounts shown include pay act costs)

Item	Obligations, 1949	Estimated obligations, 1950	Estimated obligations, 1951
Research and Marketing Act of 1946,			
Department of Agriculture:			
For coordination of informa-			
tional activities in connec-			
tion with administration of			
the Research and Marketing Act			
of 1946 .....	\$41,412:	\$35,100:	\$33,000
Working Fund, Agriculture, Office			
of Information, Advances from:			
National Military Establish-			
ments:			
Department of the Air Force,			
for preparation and dis-			
tribution of motion pic-			
tures .....	57,224:	25,897:	- -
Department of the Army, for			
preparation and distri-			
bution of exhibits .....	- -	750:	- -
Corp of Engineers, for			
preparation and dis-			
tribution of publica-			
tions .....	2,039:	761:	- -
Department of State, for pre-			
paration and distribution of			
motion pictures .....	534:	466:	- -
Veterans Administration, for			
preparation and distribution			
of motion pictures .....	107,876:	159,531:	- -
National Housing Agency, for			
preparation and distribution			
of motion pictures .....	86:	- -:	- -
Total, General Working			
Funds .....	167,759:	187,405:	- -
Miscellaneous Contributed Funds,			
Department of Agriculture (Office			
of Information):			
Trust funds deposited by co-			
operatives for:			
Preparation and distribu-			
tion of exhibits .....	3,862:	7,741:	6,220

(Continued on next page)

Item	Obligations, 1949	Estimated obligations, 1950	Estimated obligations, 1951
Miscellaneous Contributed Funds,			
Department of Agriculture (Office of Information): Cont'd.			
Trust funds deposited by co- operatives for: Cont'd.			
Preparation and distribu- tion of motion pictures	7,668:	12,305:	- -
Total .....	11,530:	20,046:	6,220
Working Fund, Agriculture, Office of Information (Trust Account)			
Advance from Federal Land Banks:			
For preparation and dis- tribution of motion pictures .....	27:	- -	- -
TOTAL OBLIGATIONS UNDER ALLOTMENTS,			
TRUST FUNDS AND WORKING FUNDS ..	220,728:	242,551:	39,220



LIBRARY

Purpose Statement

Function: The Library, pursuant to the Department's Organic Act of 1862, and under delegation from the Secretary, "procures and preserves all information concerning agriculture which can be obtained by means of books ...". By a cooperative arrangement with the Library of Congress, the Department of Agriculture Library also serves as the National Agricultural Library.

Activities: The Library makes available to the research workers of the Department and the State agricultural colleges, as well as to the general public, the agricultural knowledge of the world that is contained in published literature, thus eliminating duplication of effort and wasted time by enabling the scientists and administrators to know prior to the initiation of a project what has been done previously in that field of research or agricultural activity. In pursuance of the Organic Act, the Library collects current and historical published material and organizes it for maximum service to the Department and the public through reference services, loans of publications, bibliographical services, and photo-reproduction of library materials. It issues a monthly Bibliography of Agriculture in which is listed the agricultural literature of the world.

Organization: The Library serves as a staff office of the Secretary and in addition has operating responsibilities in the field of library and bibliographical services. There are six field branches with general collections serving the Department staff in designated geographical areas and seven specialized field branches serving major field research installations of the Department.

On November 30, 1949, the Library had 188 employees of whom 156 were in Washington and 32 in the field.

	<u>Estimated, 1950</u>	<u>Budget estimate, 1951</u>
Appropriated Funds	\$729,593	\$740,000



Salaries and Expenses

Appropriation Act, 1950 .....	\$713,293
Anticipated Pay Adjustment Supplemental .....	16,300
Base for 1951 .....	729,593
Budget Estimate, 1951 .....	740,000
Increase .....	<u>+10,407</u>

SUMMARY OF INCREASES AND DECREASES, 1951

Elimination of non-recurring item included in 1950 Act for removing a portion of the Library collection to another building ....	-4,186
For within-grade salary advancements .....	+6,548
Increase necessary to place on a full-year basis in 1951, pay adjustments under P. L. 429 which were in effect for only a part of fiscal year 1950 .....	+8,045

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950 (estimated)	Increase or decrease: P.L. 429 : Other :		1951 (estimated)
1. Acquisition of publications and preparation for use .....	\$253,619:	\$253,429:	+\$2,450:	+\$1,494(1):	\$257,373
2. Bibliographical services :	168,970:	172,810:	+2,228:	+2,976(1):	178,014
3. Reference and circulation services:	:	:	:	:	:
(a) Washington .....	189,432:	196,498:	+2,113:	-2,820(2):	195,791
(b) Field .....	104,798:	106,856:	+1,254:	+712(1):	108,822
Total pay adjustment costs (P.L. 429) .....	[ - - ]:	[16,300]:	[+8,045]:	[ - - ]:	[+24,345]
Unobligated balance .....	31:	- - :	- - :	- - :	- -
Total available .....	716,850:	729,593 :	+8,045(3):	+2,362:	740,000
Anticipated pay adjustment supplemental .....	- - :	-16,300 :	:	:	:
Total estimate or appropriation .....	716,850:	713,293 :	:	:	:

INCREASES AND DECREASES

A net increase of \$10,407 in this item for 1951 is composed of the following:

(1) An increase of \$5,182 under Projects 1, 2 and 3b, for increased costs of within-grade salary advancements in the fiscal year 1951.

The Mead-Ramspeck Act, as amended by the Classification Act of 1949, provides that employees compensated on a per annum basis and occupying permanent positions, and who have not attained the maximum rate of compensation for the grade in which their positions were allocated, should receive an advance in compensation to the next higher rate within the grade after each 52 weeks of service



for employees in grades below GS-11, and after each 78 weeks of service for employees in GS-11 and above.

The increases of \$5,182 under Projects 1, 2, and 3b, and \$1,366 under Project 3a are to cover, in part, the additional cost of these within-grade salary advancements in the fiscal year 1951. These increases were determined only after careful consideration of the cost of within-grade salary advancements that can be absorbed through (1) savings due to delay in filling vacancies and (2) savings due to filling vacancies at the minimum of the grade as a result of separations and promotions. The rate of turnover in the higher professional and administrative positions is very low, and the rate of turnover in the lower grades is decreasing. Thus, it will be more difficult to absorb within-grade salary advancement costs in 1951 than in previous years due to very small savings estimated to accrue from turnover. Further absorption of this cost would necessitate curtailment of essential library services performed for the Department and the persons engaged in agricultural enterprises.

(2) A net decrease of \$2,820, under Project 3a, composed of:

(a) An increase of \$1,366 for increased costs of within-grade salary advancements in fiscal year 1951 (see above).

(b) A decrease of \$4,186 due to the elimination of a non-recurring item provided in the 1950 Agricultural Appropriation Act for removing a portion of the library collection to another building.

(3) An Increase of \$8,045 to place on a full-year basis in 1951 pay adjustments under Public Law 429 which were in effect for only a part of the fiscal year 1950.

#### CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

For necessary expenses, including

- 1 [exchange of reference books, lawbooks, technical and scientific books, periodicals, and expenses incurred in completing imperfect
- 2 series; not to exceed \$1,200 for newspapers;] dues, when authorized by the Secretary, for library membership in societies or associations which issue publications to members only or at a price to members lower than to subscribers who are not members; (\$713,293) \$740,000, of which not to exceed (\$518,800) \$544,120 may be expended for personal services in the District of Columbia.

The first change proposes deletion of the words "exchange of reference books, lawbooks, technical and scientific books, periodicals, and expenses incurred in completing imperfect series." Retention of this language is no longer required since Public Law 152, approved June 30, 1949, authorizes executive agencies, in acquiring personal property, to exchange or sell similar items and to apply the exchange allowance or proceeds of sale in whole or in part payment for the property acquired.

The second change in language deletes the limitation on purchase of newspapers. The limitation is proposed for deletion to eliminate the additional accounting and auditing work involved since Public Law 600, approved August 2, 1946, repealed the former statutory requirement that specific authorization for the purchase of newspapers, books of reference, and periodicals must be contained in either enabling legislation or the appropriation act.





## STATUS OF PROGRAM

General: The Library serves as the central library of the Department, and, through cooperative agreement with the Library of Congress, as the National Agricultural Library.

The Library collects information on agriculture and other related subjects by means of published material which is made available to all persons for whom the material is of value. These reference materials are necessary for the efficient administration of the Department's programs. The Library is organized with the major collection located in Washington and small field branches serving the Department's field workers at points of greatest demand.

Typical Current Activities: The following are selected as typical of the major lines of work of the Library:

1. Acquisition of foreign and domestic publications in the fields of agriculture through purchase from commercial sources, gifts, exchange agreements with different countries, and cooperative acquisition projects with the Library of Congress and other research libraries.

2. Preparation of agricultural bibliographies with an increasing coverage of the world's agricultural literature.

3. Providing reference and circulation services to patrons of the Library, including in addition to Department personnel, farmers, private research corporations, colleges and universities, etc., through answering reference questions verbally or by telephone and mail, furnishing desired publications on loan, verifying references, and maintaining the collection.

4. Facilitating the execution of the Department's programs by making available published material to the man-on-the-job, wherever he may be stationed, through 13 field libraries serving as outlets for the main Library as well as reservoirs of information near to the field workers. Through these library services provided to field staff, the stocking of a large number of relatively little used books in field offices is unnecessary.

### Selected Examples of Recent Progress:

1. Status of Acquisition Program. A continuing aggressive acquisition program is necessary to provide the major agricultural publications required by the Department's workers, collaborators, farmers, industrial users or the public generally. The nation as a whole looks to this library as the one place where the major portion of the world's important agricultural publications is available. In 1949 the purchase of second copies of heavily-used journals was eliminated. In addition, it was necessary to reduce the quality of review on foreign exchange agreements resulting in fewer publications being received in exchange for Department publications.

The number of publications received from all sources (i.e., gift, purchase or exchange) for the corresponding period is given below.

<u>Year</u>	<u>No. of Volumes</u>	<u>No. of Periodical Issues</u>
1945	36,670	a/
1946	45,492	722,100
1947	65,135	867,787
1948	61,258	744,757
1949	54,675	626,117 b/

a/ Information not available.

b/ The reduction from 1948 to 1949 resulted primarily from a change in the acquisition policy late in the fiscal year 1948. Formerly 4 copies of all Department publications were received. Now only 2 copies are entered.

2. The number of new titles cataloged decreased slightly from 14,170 in 1948 to 13,347 due mainly to staff turnover. However, some progress was made during the year in reducing certain backlogs so that at the end of the year, there was less uncataloged material than at any other period.

3. The Monthly Bibliography of Agriculture was changed to one volume during the past year. Eleven issues containing references and author index and one issue consisting entirely of subject and author index for the volume were issued during the calendar year 1948.

The use of punched cards for preparation of the index was developed early in calendar year 1949. Studies reveal considerable savings in time and costs of preparation of author and subject indexing. The number of reference items included in the Bibliography of Agriculture for the last five years are indicated below:

<u>Year</u>	<u>No. of Reference Items</u>
1945	55,761
1946	56,966
1947	67,235
1948	84,229
1949	82,269

4. There were 52 other bibliographies prepared on important activities

of the Department. An important one was Index VII to the Literature of American Economic Entomology. The sales of Bibliography on Cooperation under the Library's authority to sell copies of bibliographies amounted to 525 copies at 85 cents each, or a total of \$446.25.

5. The photocopying section completed 47,239 separate orders, representing 1,273,208 pages of microfilm and photoprint. Of this amount 9,552 orders, totaling 104,409 pages, were provided free of charge to the Department's agencies. For the remaining orders, \$35,383 was received in reimbursement of the cost of the operations.

6. The number of publications loaned and circulated and the number of reference questions answered increased sharply in Washington, while they decreased some in the field due to curtailed field library services.

Volume of Circulation-loans-routing

	<u>1948</u>	<u>1949</u>	Percent of Increase or Decrease
Washington	473,987	512,163	+8.0
Field	<u>906,416</u>	<u>905,453</u>	-0.1
	1,380,403	1,417,616	+2.7
Reproductions	<u>45,618</u>	<u>47,439</u>	+4.0
Total	1,426,021	1,465,055	+2.7

Reference Questions Answered

Washington	132,329	153,350	+15.8
Field	<u>54,388</u>	<u>48,896</u>	-10.1
Total	186,717	202,246	+ 8.3

7. The results of the reduced field library services for 1949 are reflected throughout the above statement. The reduced acquisition program, the reduction in other bibliographies and in the number of books and periodicals circulated and reference questions answered all were primarily caused by the reduction in number of branch libraries. The library service rendered to the field agencies of the Department is substantially under the requests for that service.



8. Progress made in binding operation: A waiver was again issued by the Public Printer permitting the binding work to be performed under contract to commercial binders. Under this authorization the number of publications bound was highest in the history of the Library, being 13,400 volumes of current material. However, despite this fact, there were an additional four thousand volumes of current publications added to an already burdensome backlog of over 150,000 volumes.

PRINCIPAL OVERALL VOLUME OF WORK STATISTICS  
Actual Fiscal Years 1945-1949, Estimated 1950-1951

Item	Actual					Estimated	
	1945	1946	1947	1948	1949	1950	1951
Titles catalogued.....	11,073	11,386	9,860	14,710	13,347	15,000	15,000
New cards added to library catalog .....	104,596	101,394	82,954	100,740	91,767	95,000	95,000
Loans of books or periodicals and reproductions supplied <u>a/</u>	1,416,975	1,475,170	1,110,168	1,426,021	1,465,055	1,475,000	1,475,000
Serial publications entered.....	351,922	281,759	339,627	283,836	263,653	270,000	270,000
Items indexed in Bibliography of Agriculture.....	55,761	56,966	67,235	84,229	82,269	85,000	88,000
Reference questions answered .....	196,064	180,758	202,373	186,717	202,246	205,000	205,000
Volumes bound .....	9,544	6,504	3,453	11,404	13,400	13,000	13,000
Obligations for books, periodicals and other publications .....	\$44,872	\$42,738	\$48,534	\$43,490	\$37,983	\$41,000	\$41,000
Obligations for newspapers .....	\$1,077	\$1,191	\$1,101	\$1,162	\$1,195	\$1,200	\$1,200

a/ Statistics for 1945-1948 adjusted for comparability to definition used in 1949.

STATEMENT OF OBLIGATIONS UNDER WORKING FUNDS AND ALLOTMENTS  
(Amounts Shown Include Pay Adjustment Costs)

Item	Obligations, 1949	Estimated obligations, 1950	Estimated obligations, 1951
<u>Working Fund, Agriculture Library,</u>			
<u>Advances from:</u>			
<u>Bureau of Entomology and Plant</u>			
<u>Quarantine:</u>			
For special bibliographical			
services on bee culture .....	\$3,201	\$3,345	\$3,540
<u>Department of Commerce:</u>			
For supervision of the construc-			
tion and pilot test studies on			
Rapid Selector .....	6,297	- -	- -
<u>Atomic Energy Commission:</u>			
For modification of Rapid Selector			
Machine .....	- -	7,500	7,500
<u>Economic Cooperation Administration:</u>			
For library and bibliographical			
services .....	32,564	38,154	37,460
Total, Working Funds .....	42,062	48,999	48,500
<u>Return of Excess Deposits for</u>			
<u>Reproduction of Photographs, Mosaics</u>			
<u>and Maps (Library):</u>			
Trust fund for moneys received			
for photographic reproductions			
in excess of cost of making			
such reproductions .....	300	300	229
<u>International Information and</u>			
<u>Educational Activities (Transfer</u>			
<u>from State Department) (Library):</u>			
For furnishing microfilm services			
to Latin-American scientists,			
cooperators, and agricultural			
attaches .....	2,250	3,000	a/ - -
TOTAL, OBLIGATIONS UNDER WORKING			
FUNDS AND ALLOTMENTS .....	44,612	52,299	48,729

a/ Allotments under this transfer have not yet been determined for the fiscal year 1951.



BUREAU OF AGRICULTURAL ECONOMICS

Purpose Statement

The Organic Act of 1862 provided as part of the duties of the Department of Agriculture "to acquire and diffuse among the people of the United States useful information on subjects connected with Agriculture, in the most general and comprehensive sense of that word\*\*\*" and specifically for the "collection of Statistics." A small beginning had been made on statistical work in the Patent Office and this work was taken over by the Department of Agriculture when it was established. The issuance of regular crop reports has continued ever since, the scope and coverage being increased from time to time by Congress.

On July 1, 1922, the present Bureau of Agricultural Economics was formed by the consolidation of the former Bureaus of Markets and Crop Estimates and the Office of Farm Management and Farm Economics. The duties and responsibilities of this Bureau have been modified from time to time by law and by Secretary's directives. As now constituted, the Bureau of Agricultural Economics is the chief economic research and statistical agency of the Department of Agriculture. The Bureau also serves as a service agency, supplying the Secretary's Office and other agencies with statistical data and economic analyses relating to current and proposed Department programs and activities as well as being responsible for general oversight of statistical matters and economic research throughout the Department.

This last function includes:

- (a) Coordinating the collection, analysis, and publication of and the carrying out of economic research for the purpose of insuring improved methods and adequate coverage; avoiding duplication, and providing the most generally useful data for statistical purposes.
- (b) Acting as the Department's liaison agency with the Division of Statistical Standards of the Bureau of the Budget, Department of Commerce and other government agencies having an interest in statistics or economic research relating to agriculture, including the clearance of questionnaires for gathering statistical data.
- (c) Developing improved methods for collection and analysis of statistical and economic data so as to increase accuracy and broaden the usefulness of statistical series, estimates and the results of research.

Two subappropriations provide for work as follows:

Economic Investigations: Research is conducted and information furnished on production and distribution of commodities, land utilization and conservation; including farm management methods and practices, land ownership, and values; utiliza-

tion of farm products; purchasing of farm supplies; farm population, farm labor; farm finance, insurance, and taxation; adjustments in production to probable demand; costs, prices, and income in their relation to agriculture, including causes for variations and trends. Much of this work is performed in the field in cooperation with the Land Grant Colleges and other State institutions.

Crop and Livestock Estimates: Extensive statistical and economic data relating to food and agriculture are gathered, analyzed and published, including acreages, yields, and grades; staples of cotton; stocks and values of farm crops; numbers, grades, and value of livestock and livestock products on farms; and such related data as prices received and prices paid by farmers. Thousands of farmers, processors, merchants, and others serve as volunteer reporters and these reports are supplemented by field observations of the Bureau's statisticians and other data to provide the many estimates and reports issued for public information

The Bureau's central office is in Washington, D.C., with program activities carried on from 41 State offices (covering crop estimating and other statistical work in all States). Formal cooperative work is being carried on with Land Grant Colleges and other State institutions in 46 States and informal cooperation with every State in the Union.

On November 30, 1949, the Bureau had 1,538 employees, of whom 733 were in Washington and 805 in the field.

	<u>Estimated, 1950</u>	<u>Budget estimate, 1951</u>
Appropriated funds:	\$4,913,500	\$5,638,500



Summary of Appropriations, 1950 and Estimates, 1951

(Amounts Include Estimated Pay Adjustment Supplementals)

Item	Total estimated available 1950 a/	Budget estimates, 1951	Increase (+) or decrease (-)
Salaries and expenses:			
Economic investigations .....	\$2,057,400	\$2,282,000	+ \$224,600
Crop and livestock estimates.	2,856,100	3,356,500	+ 500,400
Total, direct annual appro- priations.....	4,913,500	5,638,500	+ \$725,000

a/ Adjusted for comparability with the appropriation structure proposed in the 1951 Budget Estimates.

(a) Preamble

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

- For necessary expenses, including not to exceed \$2,390,000 ~~\$2,763,000~~ for personal services in the District of Columbia,
- 1 including the salary of Chief of Bureau at \$10,330 per annum,
  - 2 and not to exceed \$1,000 for the purchase of books of reference, periodicals, and newspapers, as follows:

The first change in language proposes deletion of the provision pertaining to the salary of the Chief of Bureau. This position will now be allocated under provisions of the Classification Act of 1949, approved October 28, 1949, and retention of the authority in the appropriation language is no longer necessary.

The second change in language deletes specific authority to purchase books of reference, periodicals, and newspapers. Public Law 600, approved August 2, 1946, repealed the former statutory requirements that specific authorization for the purchase of newspapers, books of reference, and periodicals be carried in either substantive legislation or the appropriation act. Therefore, retention of the subject limitation is no longer necessary, and its deletion is proposed to simplify the accounting and auditing work incident thereto.

(b) Economic Investigations

Appropriation Act, 1950 .....	\$2,000,000
Anticipated pay adjustment supplemental, 1950 .....	42,000
Activities transferred in 1951 Estimates from "Salaries and expenses, farm housing, Department of Agriculture" for economic research on farm housing and farm construction.	15,400
Base for 1951 .....	2,057,400
Budget Estimate, 1951 .....	2,282,000
Increase .....	<u>224,600</u>



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SUMMARY OF INCREASES, 1951

For strengthening work on farm costs and returns .....	+ 91,900
For State estimates of farm production expenditures and net farm income .....	+ 90,000
For economic research on farm housing and farm construction .....	+ 24,000
To place on a full-year basis in 1951, pay adjustments under P.L. 429 which were in effect for only a part of fiscal year 1950.....	+ 18,700

PROJECT STATEMENT  
(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950	Increase or decrease:			1951
			P.L. 429	Adjustment	Other	
		(estimated)				(estimated)
1. Economics of production .....	\$1,104,351	\$1,088,000	+\$9,100	+\$91,900(1)		\$1,189,000
2. Prices, income and marketing .....	731,995	723,000	+7,000	+90,000(2)		820,000
3. Farm population and manpower .....	279,638	231,000	+2,000	- -		233,000
4. Farm housing and construction .....	- -	15,400	+ 600	+24,000(3)		40,000
Total pay adjustment costs, P.L. 429 .....	[ - - ]	[ 42,400 ]	[ +18,700 ]	[ +5,400 ]		[ 66,500 ]
Unobligated balance .....	+16,001	- -	- -	- -		- -
Total available .....	2,131,985	2,057,400	+18,700(4)	+205,900		2,282,000
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture" ..	+15	- -				
Transfer in 1950 estimates from "Printing & binding, Department of Agriculture" .....	-25,000	- -				
Transfer in 1951 estimates from "Farm housing, Department of Agriculture" .....	- -	-15,400				
Anticipated pay adjustment supplemental .....	- -	-42,000				
Total appropriation or estimate .....	2,107,000	2,000,000				

INCREASES

The increase of \$224,600 in this item for 1951 is composed of the following:

- (1) Increase of \$91,900 under the project "Economics of production" for strengthening work on farm costs and returns.

Objective: To develop, in cooperation with Land-Grant Colleges, information that will provide measures of current changes in farm costs and returns to families operating farms of different types and sizes in major farming

areas; to supply current estimates on cost changes in the production of major products; and to provide the basis for evaluating effects of alternative or prospective changes in prices, costs, or other factors on farm returns to specific groups of farms by type, size, and location.

Problem and Significance: In 1948 net income of farm operators declined from the preceding year for the first time in a decade. It declined still further in 1949, as prices received by farmers continued downward with no offsetting decrease in farm costs, except for farm-raised feed and livestock. The effect of this price-cost squeeze varies by types and sizes of farms and by farming areas. Technological developments and other changes also affect differently groups of farms of various types, sizes, and locations.

A knowledge of changes in costs and returns year by year on important types and sizes of farms is essential for proper understanding of farm trends and emerging problems, for most effective administration of farm programs, and for meeting requests for information. The Bureau is receiving a constantly increasing number of requests for costs and returns information on different types of farms in the major farming areas. A more adequate program of research on costs, income, and net returns from farming by type, size, and location of farms is needed to construct series for new areas and to provide more adequate bases for estimating the costs involved in the production of major products. Up to the present time series have been worked out for some of the principal wheat, cotton, corn, tobacco, dairy, and range-livestock areas covering a period of 20 years (1930-1949). Series have been published for 15 major situations and six more are in preparation. Additional series are needed to reflect changes in other important farming areas; and more complete information is needed to analyze the situation more fully and to improve current estimates in areas now covered.

Plan of Work: The Bureau would continue to analyze and improve estimates of costs and returns for the series now published and in process of preparation. It would expand and extend its statistical series covering farm costs and returns on commercially-operated farms by type and size into additional major agricultural areas. Farm types needing particular attention include several more cotton areas in the South, fruit and vegetable farming areas, irrigated areas in the West, and general farms in the transitional zones between the Corn Belt and the Cotton Belt, in order that adequate knowledge may be developed on changes in, and factors affecting, farm costs and returns by type and size of farm for major farming areas.

- (2) Increase of \$90,000 under the project "Prices, income and marketing", to develop statistics on farm production expenditures and net farm income

Need for Increase: State estimates of gross farm income, farm production expenses, and net farm income are needed as background data and as tools of analysis by all agencies concerned with farm programs.

More and better information on the geographic distribution of farmers' income is essential to the development of agricultural programs most suitable for maintaining parity income for farm workers. The Agricultural Act



of 1948 defines parity income as "that gross income from agriculture which will provide the farm operator and his family with a standard of living equivalent to those afforded persons dependent upon other gainful occupation." This definition will require additional research to provide satisfactory measures of comparable standards of living. And the development of better data on regional and State differences in net farm income will be an essential first step in that direction.

The Bureau now prepares estimates of gross farm income, production expenses, and net farm income in considerable detail for the United States as a whole. But the preparation of similar estimates for each of the 48 States requires more detailed research and the collection of more data than are required for the national estimates. The requested increase would enable the Bureau to resume work on providing estimates of gross farm income, production expenses, and net farm income by States, work which needs to be and can be most economically carried forward State by State. The preparation of gross and net farm income estimates requires a great deal of analytical work which is performed under the subappropriation "Economic Investigations". Much of the primary data used for this purpose are gathered through the field organization under "Crop and Livestock Estimates", but data from various other sources are also used.

Plan of Work: Collection of some new data on expense items is very desirable but much of the basic data needed for the construction of State estimates are already available, and only await adequate resources for their utilization. An experimental project was initiated in 1942, with the result that preliminary estimates of farmers' net income in each State were developed for the years 1929 and 1939-45. Much new data have since become available, however, and these preliminary estimates are badly in need of revision.

The plan of work includes the following steps:

- (a) compilation and analysis of the basic data now available,
- (b) collection of new data wherever necessary, to supplement data which are to be gathered under other segments of the Bureau estimates,
- (c) comprehensive revision of the preliminary estimates already developed for the years 1929 and 1939-45,
- (d) construction of new estimates for the interim years, 1930-38,
- (e) extension of the estimates to a current basis through the year 1949,
- (f) publication of the results for general use, and
- (g) keeping them up to-date thereafter.



(3) Increase of \$24,000 under the project "Farm housing and construction" for economic research on farm housing and farm construction.

Objective: To conduct research and economic analyses and interpretations of data on farm housing and farm construction gathered through special surveys required as an integral part of the farm housing program being administered by the Department.

Problem and Significance: The Housing Act of 1949 requires the Secretary of Agriculture to prepare and submit to the President and to Congress estimates of farm housing needs and reports with respect to the progress being made toward meeting such needs and to recommend proposals for executive action or legislation for the furtherance of the program and to furnish such other information as may be required by the President or Congress.

A beginning will be made on basic research, during the fiscal year 1950, and a staff is being recruited for work on the problems of costs and financing of the farm building program.

Plan of Work: Research and economic analysis would be conducted in 1951 to develop information in the following fields:

- (a) Reducing costs of farm construction: Economic research would be undertaken in cooperation with workers in technical fields to determine the methods by which costs for construction might be reduced. One potential means of reducing costs is cooperative buying of standardized construction materials. Another is maximum use of native materials. Credit for financing new buildings is an important element of construction cost. The Housing Act provides loans and grants for farmers who cannot obtain credit elsewhere, but most farmers who need credit will be dependent upon commercial sources to finance construction. Intermediate term credit in sums that are too large for unsecured notes and too small for real estate mortgages is frequently difficult to obtain. Studies are needed to indicate the kind of credit facilities and repayment periods adapted to financing farm construction.
- (b) How much farmers can afford to pay for houses and other farm buildings: Research would be conducted to determine how large an investment in a house can be supported by farms of different sizes and types and income potentialities; also how long a loan would have to run to pay for a house out of farm income under different conditions.
- (c) Effect of farmers' circumstances and preferences on housing progress: Expenditures of farm families for the construction and maintenance of farm houses are competitive with living expenses and with farm operating expenses. Even with sufficient income some families may consider other things more important than improved housing. Studies will be undertaken to determine how and under what circumstances farmers with good housing obtained it. Such information will aid in overcoming obstacles

to improvement of poor houses. Factors to be considered are income, family inheritance, size of family, preferences with respect to types of housing, and need for equipment and other farm structures, etc.

- (4) Increase of \$18,700 to place on a full-year basis in 1951 pay adjustment under P. L. 429 which were in effect for only a part of the fiscal year 1950

# ECONOMIC INVESTIGATIONS

## Alternate Project Statement

Project	1949	1953 Estimated	Increase(+) or Decrease(-)	1951 Estimated	1951			Grand Total
					Section: 10(a)	Section: 10(b)	Special: Research: Fund	
1. Economics of production .....	\$1,104,351	\$1,088,000	+\$101,000	\$1,189,000	\$62,800	\$238,100	\$33,700	\$1,523,600
2. Prices, income and marketing .....	731,995	723,000	+97,000	820,000	68,100	210,300	-	1,098,400
3. Farm population and manpower .....	279,638	231,000	+2,000	233,000	-	20,600	-	253,600
4. Farm housing and construction .....	-	15,400	+24,600	40,000	-	-	-	40,000
5. Pay adjustment costs .....	-	(42,400)	(+24,100)	(66,500)	(2,900)	(14,000)	(700)	(84,100)
Unobligated balance	+16,001	-	-	-	-	-	-	-
Total available ..	2,131,985	2,057,400	+224,600	2,282,000	130,900	469,000	33,700	2,915,600
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture" ..	+15	-	-	-	-	-	-	-
Transfer in 1950 estimates from "printing and binding, Department of Agriculture" .....	-25,000	-	-	-	-	-	-	-
Transfer in 1951 estimates from "Farm housing, Department of Agri."	-	-15,400	-	-	-	-	-	-
Anticipated pay adjustment supple.	-	-42,000	-	-	-	-	-	-
Total appropriation or estimate .....	2,107,000	2,000,000	-	-	-	-	-	-



# RMA Projects

Finan- cial Project: No.	RMA No.	Project Title	1949	1950 (estimated)	Adjustments for 1951 P.L.429 Contract	Other	1951 (estimated)
		Section 10(a) Utilization Research:					
1.	60	Economic utilization of farm grown feeds.....	\$ 56,430	\$ 62,250	\$ 4550	\$ —	\$ 62,800
2.	417 (inc. 183)	Economics of new and improved uses of farm products .....	12,012	50,600	4300	410,000	60,900
2.	518	Appraisal of technological advances in agriculture .....	—	7,150	450	—	7,200
2.	36	Processing in relation to preservation of quality and nutritive value of meats.....	11,206	—	—	—	—
		Total, Section 10(a) .....	79,648	120,000	4900	410,000	130,900
		Section 10(b) Research other than utilization:					
2.	25	Methods of measuring farm expenditures and income .....	18,656	12,250	-250	(a) -12,000	—
2.	26	Development of sampling material west of the 100th Meridian .....	6,741	—	—	—	—
1.	99	Mineral deficiencies in soil .....	4,651	12,250	4150	—	12,400
1.	523	Economics of soil conservation .....	—	23,500	4200	—	23,700
1.	61	Risk bearing in agricultural production .....	21,115	22,400	4300	—	22,700

(continued on next page)

# RMA Projects (Continued)

Finan- cial Project: No.	RMA Project: No.	Project Title	1949	1950 (estimated)	Adjustments for 1951			1951 (estimated)
					P.L.429	Contract	Other	
		Section 10(b) Research other than utilization: Continued						
1.	139	Seasonal milk problems	15,789	10,200	-200	—	(b) -10,000	—
1.	237	Farming alternatives in major compet- ing potato areas	12,638	13,300	4100	—	—	13,400
1.	62	Economics of farm mechanization and other improved techniques	93,239	107,200	41,000	—	—	108,200
1.	73	Farm service buildings	9,725	11,200	4100	—	—	11,300
1.	138	Factors affecting electric power con- sumption on farms	26,034	31,700	4700	—	(c) 414,000	46,400
3.	541	Utilization of health services	—	20,400	4200	—	—	20,600
2.	27	Marketing livestock in the Western States	25,985	55,100	4900	—	(d) 48,000	64,000
2.	165	Regional marketing research on fruits and vegetables (other than citrus)	12,841	22,500	4200	—	—	22,700
2.	174	Regional marketing research on Irish potatoes	23,249	23,500	4200	—	—	23,700
2.	191	Regional marketing research in citrus fruits	16,791	17,350	4150	—	—	17,500

(continued on next page)

RMA Projects (Continued)

Finan- cial Project	No.	No.	Project Title	1949	1950	Adjustments for 1951	1951
				(estimat- ed)	(estimat- ed)	Contract: Other	(estimated)
			<u>Section 10(b) Research other than utilization: Continued</u>				
2.	198		Regional research in poultry and egg marketing .....	17,782	25,500	4200	25,700
2.	221		Regional research in dairy marketing.	33,582	45,950	4450	46,400
2.	228		Regional marketing of one-variety community cotton .....	7,404	10,200	4100	10,300
			Total, Section 10(b) .....	346,222	464,500	44,500	469,000
			Total, RMA .....	425,870	584,500	410,000	599,900

Special Research Projects

1.	SRF-2-	Interregional shifts in poultry production .....	32,746	33,500	4200	33,700
	115	Total, Special Research Fund .....	32,746	33,500	4200	33,700

(a) An adjustment of \$12,000 within available funds due to completion of work which has been conducted under project 25, "Methods of measuring farm expenditures and income."

The phase of this work which has been provided for under this project will be completed during the current year. A preliminary report has been prepared covering size distribution of farm operators' income in 1946 and a revised publication will be completed during the current fiscal year. The \$12,000 thus released will be used to finance other projects of more immediate urgency.

(b) An adjustment of \$10,000 under project 139 "Seasonal milk problems."

The phases of this work now being carried on will be completed during the current year and the funds will be used to provide for other more urgent work.



(c) An adjustment within available funds to provide an additional \$14,000 under project 138 "Factors affecting electric power consumption on farms."

Objective: To provide a basis for developing economical systems of electrification on farms and for increasing efficiency and labor saving in crop and livestock production.

Problem and Significance: There is need for expansion of studies to determine how and to what extent various factors affect electric power consumption on farms and how the increased use of electricity can increase the potential income capacity of farms.

Plan of Work: It is planned to complete analysis now under way in Georgia, Tennessee, North Dakota and Iowa, and extend work to other important situations in a dairy area, a cotton area of the Mississippi Delta, and in the Southwest, constituting part of the original plan to cover all major type-of-farming areas of the country.

(d) An adjustment within available funds to provide an additional \$8,000 under project 27 "Marketing research cooperative with States" to expand the cooperative regional research on livestock problems especially in the Southern States.

Objective: To determine factors affecting the demand for and consumption of livestock, meats and other products, consumer buying in terms of kinds and qualities, methods of packaging, handling and other services for the purpose of gaining information on means of improving methods and reducing the costs of marketing livestock and meats.

The Problem and Significance: The livestock industry is one of the most important segments of agriculture, and because of rapidly changing conditions there is especial need at this time for more regional research on the economic problems connected with the industry.

Plan of Work: Under the increase of \$8,000 the regional research will be expanded and extended into the Southern States. The work under this project is carried on under plans made by the regional research committees set up under the Research and Marketing Act.

CHANGE IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

Economic investigations: For conducting investigations and for acquiring and diffusing useful information among the people of the United States, relative to agricultural production, distribution, land utilization, and conservation in their broadest aspects, including farm management and practice, utilization of farm and food products, purchasing of farm supplies, farm population and rural life, farm labor, farm finance, insurance and taxation, adjustments in production to probable demand for the different farm and food products; land ownership and values, farm structures, costs, prices and income in their relation to agriculture, including causes for their variations and trends, /~~\$2,000,000~~/ \$2,282,000:

This change is proposed to add the words "farm structures" to include appropriation language making these funds available for economic research on farm housing as authorized under Section 506 of the "Housing Act of 1949" (Public Law 171, 81st Congress.)

STATUS OF PROGRAM

*Inserted in Record*

Current Activities: Investigations are undertaken to develop and keep current such statistical series or estimates as: farmers' cash receipts and expenditures; gross and net farm income; indexes of farm production; estimates of per capita consumption for individual commodities and for total foods; land values and volume of sales of farm real estate; farm taxes; interest paid; valuation of livestock and farm equipment; costs and returns from farming, by type of farm; estimates of total farm population and of migration to and from farms; indexes of levels of living and similar series.

Basic research and service work is also performed, largely in cooperation with Land Grant Colleges and other State institutions, covering such subjects as farm organization and operating methods; farm costs and returns from farming; economic use of lands; and factors which affect agricultural supply, demand and prices.

The four main fields of work covered under this appropriation are as follows:

Economics of Production which relates not only to the ownership, valuation, financing, and operation of farms as individual units, but also to the utilization of labor, equipment, land and water in their broader economic aspects.

Prices, Income and Marketing which cover research on supply, demand and price relationships; consumption and general utilization of farm products; and economic problems of marketing and transportation.

Farm Population and Manpower which covers statistics of farm population and migration; levels and standards of living; rural organization; and farm labor and wages.

Farm Housing and Farm Construction. This is a new field of research currently being developed under the Housing Act of 1949.

Selected Examples of Recent Progress:

Economics of Production

1. Farm output in 1949 was 138 percent of 1935-39--only slightly less than the record output of 1948. Increases in farm output have been particularly marked in three of the central divisions of States and in the Mountain States. All geographic divisions have shared in the general increase in farm output during the past 30 years, although production is much more variable in some than in others. The Pacific States have had the largest and most consistent gains in farm output (Figure 1).
2. Production per worker in agriculture was the greatest on record in 1949 (Figure 2), contrasted with a considerable decline in production per worker in manufacturing and mining since the peak war years (Figure 3).



3. Annual estimates are made of costs and returns from farming, by type and size of farm, for 15 major types of commercial family-operated farms. On most types of farms the upward trend in both production and costs continued through 1947 and 1948. Net farm incomes were lower in 1948 than in 1947 on wheat farms, on cash grain farms of the Corn Belt, and on cotton farms in the Black Prairie and Southern Plains areas of Texas. Net incomes were higher in 1948 on dairy farms, on Corn Belt farms other than cash grain, and on cattle ranches of the Intermountain Region (Figure 4). Preliminary information indicates lower net incomes in 1949 than in 1948 on most types of farms.
4. In 1948 consumption of liquid petroleum fuels by farmers in the United States totaled 8.3 billion gallons, an increase of 10 percent over 1947. About 40 percent was for tractors, about 37 percent for automobiles and motor trucks, about 4 percent for stationary and mounted motors, and 19 percent was used in the farm household and for miscellaneous farm uses (Figure 5). Over 70 percent of the liquid petroleum fuels used was gasoline. Farmers supply about 17 percent of the total market for gasoline in the United States.
5. Major attention has been given to cooperative studies with State Experiment Stations of organization and operation of farms in various types of farming regions, and to pointing out the findings of most significance to farmers. For example:
  - (a) A farmer on the typically small farm in the rolling upland area of Southern Illinois must include three things in his program to increase income: (1) He must improve his land to increase yields of pasture and hay, and yields of the limited acreage of grains that he can grow; (2) he must keep dairy cattle, beef cattle, or sheep to use the forage crops he produces; and (3) he must have enterprises that will employ himself and his family profitably throughout the year. Because the farms are small and the land is primarily suited to pasture and hay production, a dairy-grassland system of farming would be a practical way to obtain a reasonably satisfactory income for the farm family. Poultry fits well primarily because it utilizes labor that is available on most farms. A 16-cow dairy herd could be maintained on a 120-acre grassland farm where improved soil management practices are followed.
  - (b) Another study shows the opportunities for adjustments in farming in the Southern Piedmont Area of North Carolina. Size of farm is very important in considering feasible adjustments. On smaller farms, where the operator or his family do not work off the farm, land is the limiting factor. The labor-intensive cotton crop usually provides more income for the family, therefore, than other common enterprises. More use of yield-increasing practices, more poultry, more lespedeza for seed and hay, and more emphasis on products for home use, are the adjustments best adapted to small farms. How-

ever, even with improved practices many Piedmont farms are too small to provide adequate incomes from full-time farming. On the medium-size farms (120 to 200 acres) the development of pastures and hay on land not suited to crops and an increase in number of dairy cows in addition to a small cotton enterprise appears desirable. On the larger farms (200 acres or more) a mechanized small grain, dairy and poultry farm, worked primarily by the operator and his family, appears more profitable to the operator than a cotton system where the cotton is grown by sharecroppers. Practices used in producing cotton are fairly well in line with Experiment Station recommendations, but on most farms other crop and livestock practices are far short of what might be considered improved practices in the light of recent developments.

(c) Farming adjustments in Eastern Oklahoma were also studied. Cotton once formed the nucleus of farming systems there, but the acreage in cotton decreased from 426,000 acres in 1928-32 to 171,000 acres in 1948. Farmers need to know what alternative enterprises might profitably supplement cotton, and perhaps replace it even further. Preliminary results of this study indicate that dairy and beef cattle are feasible alternatives in parts of the area, but their success depends partly upon pasture improvement. This now appears practicable, although it is not widely practiced. In other parts of the area vegetable crops, such as snap beans and spinach, are profitable alternatives for some farmers.

(d) The Bureau is cooperating with other branches of the Department in furnishing materials which will be useful in developing a comprehensive agricultural program for the Missouri Basin. Economic studies have been started on a limited number of areas proposed for irrigation or flood protection. These studies aim to determine the systems of farming best suited to these areas; the sizes and types of farms that are most likely to succeed and to provide adequate incomes for farm families; land settlement and other problems; capital requirements and need for public facilities to meet population increases in new agricultural areas.

6. Outstanding farm mortgage debt increased during 1948 for the third consecutive year since the low point in 1946. The total debt of 5.1 billion dollars on January 1, 1949 compared with 4.9 billion one year earlier and 4.7 at the beginning of 1946. Largest increases occurred in the western and southeastern States, whereas most of the North Central States continued to show decreases (Figure 6). Preliminary information indicates a further increase of 6 or 7 percent during the year 1949. That would mean a 16 or 17 percent rise from the low point in 1946. Farm mortgage interest rates in recent years have been at a much lower level than during the 1920's, and although farm mortgage recordings have been at a relatively high level in recent years, exceeding 1.4 billion dollars, they are very much less than they were after World War I when they totaled as much as 3.6 billion in 1920.



Trends of outstanding farm mortgages and mortgage interest rates for the period 1940-48 are analyzed in two recent reports. Circular No. 812 compares mortgage debt trends during and following World War II with those for a comparable period during and following World War I with special reference to lender group and regional differences. Circular No. 821 summarizes and analyzes available data on farm mortgage interest rates and charges by areas and lender groups and relates mortgage interest trends to trends of corporate and Government bond yields (Figure 7).

7. Non-real estate loans to farmers held by principal lenders have increased each year since the war. On July 1, 1949 the total for the United States was 75 percent higher than on July 1, 1945 (exclusive of Commodity Credit Corporation price-support loans). Loans more than doubled in Oregon, Arizona, and a number of States east of the Mississippi River (Figure 8). Relatively small increases occurred in the northern Great Plains and southeastern States. Large expenditures of farmers for machinery, livestock, and farm and home improvements are believed to be the chief reason for the postwar expansion of these loans. Contributing factors have been the increase in farm production and living costs, and in 1949 some decline in farm income.
8. The Balance Sheet of Agriculture for January 1, 1950 is expected to show a decline in the value of farm assets, and an increase in farm debts, from the levels of a year earlier. These changes will indicate a decline in the net worths of farm operators. The decline during 1949 in the agricultural equities of all owners of farm assets, including owner- and tenant-operators and non-operating landowners, is expected to approximate 6.5 billion dollars. Most of this expected decline in equities will result from the downturn in prices of farm real estate and other physical farm assets. The value of farm real estate is expected to show a decline of about 3.2 billion dollars for 1949 (from 65.2 billion on January 1, 1949 to 62.0 billion on January 1, 1950). Other physical assets are expected to show a decline of about 2.1 billion dollars (from 40.3 billion to 38.2 billion). In addition to these changes, farm debts are expected to show an increase of about 900 million dollars, and financial assets owned by farmers a decrease of about 360 million dollars.
9. Banks in agricultural areas increased their deposits from 1940 to 1949 to a much greater extent than did banks in primary or secondary trade and financial centers. Farm income has dropped in 1949 and this has caused some redistribution of deposits as between the agricultural areas and the large cities. The banks in agricultural areas at the beginning of 1949, however, held about 60 percent of their assets in the form of cash reserves and Federal securities maturing within 5 years. This indicates that they could withstand a large shrinkage of deposits without finding it necessary to liquidate their loans to farmers.



10. The volume of farm mutual fire (and lightning) insurance written on farm property increased 11 percent in 1948 compared with a 10 and a 7 percent increase, respectively, in 1947 and 1946. Losses from fire for 1948 were about as high as in 1947. There are preliminary indications that fire losses will be lower in 1949. The reserves of these mutuals continue to increase in the aggregate at a faster rate than the volume of insurance written. Rural fire protection programs have increased considerably within recent years. A total of 38 States have laws setting up legal procedures for the organization of fire protection in rural unincorporated areas. In addition, a limited amount of rural property is protected through voluntary programs in some parts of practically all States. About 10 percent of the farm mutual insurance companies grant rate credits to farmers in protected zones.
11. Farm real estate taxes levied in 1948 (payable largely in 1949) averaged about 8 percent higher per acre than in 1947. The average for the country as a whole increased from \$0.53 per acre in 1947 to \$0.57 in 1948, and the index (1909-13=100) advanced from 254 to 275. Taxes per \$100 of farm real estate value also increased, going from \$0.96 to \$1.00. This is the fifth consecutive year in which average taxes per acre for the United States have risen, and in 1948 they were 57 percent above the low point in 1943. The index is now nearing the all-time high of 281 that was reached in 1929. The rate of increase in 1948; however, was not as great as it was for 1947 when the index rose 15 percent (Figure 9). Preliminary estimates indicate a further increase in 1949, probably about the same as in 1948.
12. The Bureau's index of farm real estate values declined during 1949 for the first time in 10 years. After reaching a postwar peak of 177 (1912-14=100) in November 1948, the index declined 3 percent by July 1949 and by November 1949 was 6 percent below a year earlier. At least moderate declines from postwar peaks had occurred in all but four States by November 1949, while values were down 10 percent or more in about one-fifth of the States. Despite these recent declines, average values for the country as a whole are still about double the 1935-39 average and just under the 1920 World War I peak (Figures 10 and 11).

The volume of farm sales reached a record high during the year ended March 1947, and has dropped continually each year since. Farms changed hands at the rate of 41 farms per 1,000 of all farms during the year ending in March 1949--a rate 17 percent lower than in the previous year, nearly a third lower than during the peak year, but still about 50 percent higher than 1935-39. Slightly over half of all farm land bought in 1948-49 involved credit financing. The amount of debt in credit purchases continues to average between 50 and 55 percent of the purchase price.
13. The value of gross rents paid by farmers and net rents received by owners of rented lands continued at near peak levels during 1948. The total value of the rents payable by farmers for all leased land

is estimated at \$3.1 billion in 1948, about 3 percent less than in 1947. Cash rents were up about 12 percent, but the value of share rents was down about 6 percent. The expenses paid by landlords in 1948 totaled about \$1.0 billion, a 17 percent increase from the previous year. This left a net rent of about \$2.1 billion for farm property valued at about \$23.4 billion, and a net return of about 9 percent on the current value of the investment. This compares with a rate of return slightly over 10 percent in 1947, the peak post-war year, and an average somewhat above 5 percent during the 1935-39 period. The probability that ownership costs (taxes, insurance, and maintenance) will lag behind declines in land earnings indicates that net land returns probably will continue to work toward lower levels.

14. A comprehensive land-use map was prepared for publication, indicating the extent and distribution of the major agricultural land uses. The map portrays the principal areas used for crops, pasture, range grazing, forest, and combination of these uses, and supplements the inventory of land use published as a bulletin last year. Approximately 82 percent of the land area is used for crops and grazing. Nearly 30 percent of the land area is under some form of public administration--Federal, State, or local government. (Figures 12 and 13).
15. A report was prepared for publication on the extent and character of new land areas brought into cultivation recently and on probable amount of land development in the next few years. Even though possibilities of extensive new land development are now restricted, there is still a good outlook for improving many farms and some opportunities for creating new farms. Although new land development totals one and a half million acres per year, it is only about equal to the shifts of farm land to other uses. Use of power machinery in land development is reducing costs as compared with hand labor. Many farmers with too few acres are adding to their improved acreage by clearing, drainage, and irrigation.
16. An inventory study of public land ownership in the Lake States indicated that approximately 30 million acres, almost one-fourth of the total land area of the three Lake States, are in Federal, State, or local government ownership. Over two-thirds of the public ownership is under State, county, or other forms of local government ownership. A considerable part of this area came into public ownership by tax forfeiture.
17. Two regional reports--for the 7 Southeastern and the 13 North Central States--on the farm land ownership situation have been completed. Public and corporation ownership of farm land is much less common in these regions than in the United States as a whole--3.5 percent in the Southeast, 5.4 percent in the Midwest, and 13.5 percent in the United States. The data also point up some of the emerging land ownership problems in the United States:

- (a) Farm owners climb the "agricultural ladder" from labor to tenant to owner much less than has been commonly thought.



In the Midwest, only 36.6 percent and in the Southeast 30.6 percent of present owners had attained ownership this way.

(b) Most owners of farm land are beyond middle age. In the Midwest, 41 percent of the owners are 55 years of age or older; while in the Southeast, 44.4 percent of them have attained this age.

(c) Only a few owners have provided for the transfer of their land to the next generation by the making of a will. In the Southeast, less than one farm owner in 10, and in the Midwest only one in 6, had made a will.

(d) A significant proportion of the land is not owned outright by the so-called owner--much is held in life estates and undivided interest. In the Southeast, 17.7 percent of the land was so held, while in the Midwest, the proportion was slightly lower. (Figure 14).

18. Material on farm lease agreements was revised and brought up to date in response to the growing demand for such information. The crop-share and livestock-share lease forms were combined into one standard form, thus effecting considerable savings without unduly reducing their effectiveness. A short annual supplement form was developed to facilitate renewing the agreement and providing for necessary annual adjustments. The educational and explanatory leaflet was revised in line with the adjustments made necessary by changes in the lease form. New provisions emphasize means of encouraging soil conservation, ways of expediting shifts in land use and changes in farm practices growing out of production adjustment and technological development, and procedures for encouraging the making of capital improvements on tenant-operated farms. This material is being used in large quantities, chiefly by individual landlords and tenants, and by those in charge of the Veterans On-Farm Training Program and in the Extension Educational Program of the several States.

#### Prices, Income and Marketing

1. Appraisal of the general economic conditions affecting agriculture, which are regularly reviewed in the "Demand and Price Situation," indicates a relatively high demand for farm products during 1950. However, the downtrend in agricultural prices and income which has been underway in 1949 is likely to continue into next year. Data have been furnished to the Council of Economic Advisers, some of which will appear in the Economic Report of the President. Information on low-income farm families was submitted to the Joint Committee on the Economic Report and published in that Committee's report on Low-Income Families and Economic Stability--November 1949.

The basic demand factor for food and other farm products is the flow income to consumers. Per capita incomes, though declining slightly from peak 1948 levels were still relatively high in the third quarter of 1949, totalling more than  $2\frac{1}{2}$  times average incomes in the



period 1935-39. Expenditures for food as a result have remained high. (Figure 15). The quantity exported is another important factor in determining the prices of some agricultural commodities, notably wheat, cotton, tobacco, rice and some fruits. Exports of these commodities increased rapidly during and after the war and are expected to remain at a high level through most of 1950 partly as a result of operations of the Economic Cooperation Administration and related programs.

2. During the war, prices received (and farm income) rose faster than prices paid by farmers. In recent years the spread has narrowed. Prices received in November 1949 averaged below parity for the first month since November 1941. (Figure 16) The accompanying chart (Figure 17) shows that gross farm income reached a postwar high in 1948 but because of higher production costs net income was down slightly. Gross farm income in 1949 is about 10 percent less than the 1948 record and net income is down even more because of relatively stable production costs. For 1950, declines in income similar to those which occurred in 1949 appear likely. If this occurs, net farm income in 1950 will be about one-third less than in 1947.
3. "The National Food Situation" has carried summaries of BLS retail food prices and reviews of the factors influencing retail food prices, nutritional reviews prepared in cooperation with the Bureau of Human Nutrition and Home Economics, estimates of annual civilian consumption of all major foods, indexes of the over-all annual supply and distribution of U. S. foods, and appraisals of the several commodity situations. Food consumption in 1949 is averaging 10 percent above the 1935-39 per capita rate, but slightly below the 1948 rate. The largest increase since prewar occurred in meats, poultry products, dairy products, and processed fruits and vegetables. For 1950, per capita consumption of food is expected to be at least as large as in 1949 and probably slightly larger. (Figure 18).
4. In cooperation with other agencies, a special study was prepared on the distribution of the United States food supply in 1947-48, with special reference to exports. Among numerous other important service projects two may be cited as examples: (1) statistical and analytical work in connection with proposed price support legislation, including numerous special tables prepared for the House and Senate Committees on Agriculture, comparing price support standards and parity prices resulting from alternative legislative proposals; and (2) special analyses of the agricultural outlook, prepared for the Council of Economic Advisers and the National Security Resources Board as well as for agencies within the Department such as the Commodity Credit Corporation and the Farmers' Home Administration.
5. The frequency of commodity situation reports ranges from two issues a year for "The Sugar Situation" to ten or twelve issues for "The Livestock and Meat Situation." Short-term analyses of the outlook for selected commodities and numerous special articles and analyses were prepared. Recent examples are the history of U. S. tariff rates on dairy products (November 1949 issue of "The Dairy Situation") and improved series of retail meat prices and consumer expenditures for meat.

Analytical work which has not yet reached the publication stage includes: (a) Improvement in the method of estimating future changes in farm income, accomplished by analyzing separately those commodities which are predominately affected by the level of consumers' income, such as livestock products, and those commodities which are heavily dependent upon export outlets, such as wheat, cotton and tobacco; (b) analyses of competition between (1) fresh and processed cranberries, (2) sweet and sour cherries, and (3) between hogs and beef cattle; (c) analyses of trends in consumption of relatively new commodities such as frozen fruits and vegetables and canned fruit and vegetable juices; and (d) some experimental work in analyzing demand for all farm products.

6. Revisions have been made during the year in the series of farm-to-retail price spreads for farm food products. These are being published as a historical series extending back to 1913, and the currently published monthly estimates were changed to the revised basis in December 1949.

Estimates of farm-retail price spreads and marketing excise taxes for tobacco products have been developed and will be published currently hereafter. Farm-retail price spreads for a group of cotton clothing and household furnishing items have been prepared beginning in 1927 and current estimates will be published for one month in each quarter and for the calendar year. Revisions have been made also in the basis for estimates of the farmer's share for farm food products as well as in estimates of the national marketing bill and national aggregate retail value of farm food products.

Measurement of farm-retail price spreads for food showed that the price peak reached in July 1948 was followed by substantial declines in retail prices, most of which were borne by farmers with little change in marketing charges. The farmer's share of the consumer's dollar has declined for both cotton and tobacco products as well as for farm food products, with the farmer receiving, since March 1949, less than one-half of the consumer's food dollar for the first time in six years (Figures 19 and 20).

7. Consumer Preference Studies continue to be popular with those interested in the demand and outlets for farm products. Particular attention was given this year to the improvement of questionnaire construction, value scales, and other statistical problems connected with gathering data. An important study completed during the year covers men's preferences among selected clothing items. Newspapers, radio stations and agricultural interests have given the findings wide publicity and favorable comment. Another study which is nearing completion covers mothers' preferences for children's clothing.



Farm Population and Manpower

1. Estimates of the movement of farm population showed that the slight increase that occurred during 1948 was due to the excess of births over deaths, as the direction of net migration was away from farms. Births to farm residents exceeded deaths of farm residents by nearly a half million in 1948. This amount of natural increase was 25 percent higher than the average for 1930-39, in spite of the fact that the farm population was 11 percent smaller. Net loss through migration from farms in 1948 was only 140,000, offsetting only about a third of the gain through natural increase. Thus, the number of people living on farms increased by 1.2 percent during the year, resulting in a farm population of 27,776,000 in January 1949 (Figure 21).

Quarterly estimates of farm population by age and sex, now available from January 1944 to January 1949, permit some analysis of the seasonal movement of farm population. They indicate that the January level of farm population is approximately one-half million below the annual average. Estimates on the labor force status of farm residents in April 1948 show that 1 out of 3 employed workers living on farms is employed at a nonfarm job, compared with 1 out of 5 in 1940.

2. Data on the occupational attachments of farm operators during 1948 showed that the total number of persons reporting that they operated farms during at least a part of the year increased from 5.8 million in 1947 to 6.0 in 1948. There was a very slight increase in the percentage of these farm operators who reported some nonfarm work in addition to farming in the year--in both years such operators were a little more than one-fourth of all farm operators. Farm operators who reported nonfarm work as their main activity in the year also increased slightly. Such operators made up 11.9 percent of the total in 1947 and 13.3 percent in 1948.
3. Through cooperation with the Census Bureau additional information was gathered on the seasonal patterns of employment of farm wage workers. These and other data have been expanded into estimates which show that the total number of persons who worked on farms for wages in 1948 reached almost 4.4 millions in 1948; an increase of about 300,000 over 1947. Included in this total were a million and a quarter workers who did both farm wage work and nonfarm work in the course of the year. Most of this group did not make a permanent shift from one type of work to the other. Instead they were supplementing one type of seasonal or irregular work with another type. Year-round workers are declining in numbers and relative importance among the hired farm workers. Only about a half million persons reported 250 days or more of hired farm work in 1948 (Figure 22).
4. Items pertinent to the level of living of rural people were analyzed to relate them to the "degree of rurality" of the county of residence. Tables have been prepared showing differences between rural-farm, rural nonfarm and urban populations for selected



items, especially in health personnel available, educational attainment, and income. The study shows a close relationship between the "rurality" of counties and the availability and use of health personnel and facilities. Number of hospital beds, physicians and dentists per 100,000 population are inversely correlated with the proportion of county's population classified as rural-farm; that is, the higher the degree of rurality the smaller the number of physicians, dentists, etc. Infant mortality rates are lowest in the most urban and the most rural counties and are highest in the middle-rurality counties. Generally speaking the more rural a county is the fewer homes it has with electricity, refrigerators, radios, water piped in, flush toilets, baths, telephones and central heating. The relationship is generally consistent throughout the entire range of "rurality." (Figure 23)

Level of living indexes have been computed for farm operator families by minor civil divisions for Iowa, Nebraska, North Dakota, Indiana, Missouri, Illinois, Connecticut and Maryland. These indexes are being used by analysts of the Land-Grant Colleges to delineate areas of similar levels of living within the State. They are also experimenting with the interrelationship of level of living indexes with soils and social and economic factors.

5. Data on illness were analyzed according to age, tenure, type of farm, and size of farm. These data show that 22 percent of all farm operators were disabled for 1 day or more because of illness between January 1 and May 1. It was estimated that an average of 21 days per operator was lost during the 4-month period, or 4.6 work days by all farm operators. At this rate it is estimated that a total of 80 million man-days were lost by farm operators during the 4-month period. It was also shown that age correlates closely with rates of illness. Operators of farms under 100 acres reported more illness than those on farms of 100 acres and over; owners reported more illness than tenants.



# VOLUME OF FARM OUTPUT, BY GEOGRAPHIC DIVISIONS, 1919-49

INDEX NUMBERS (1935-39=100)

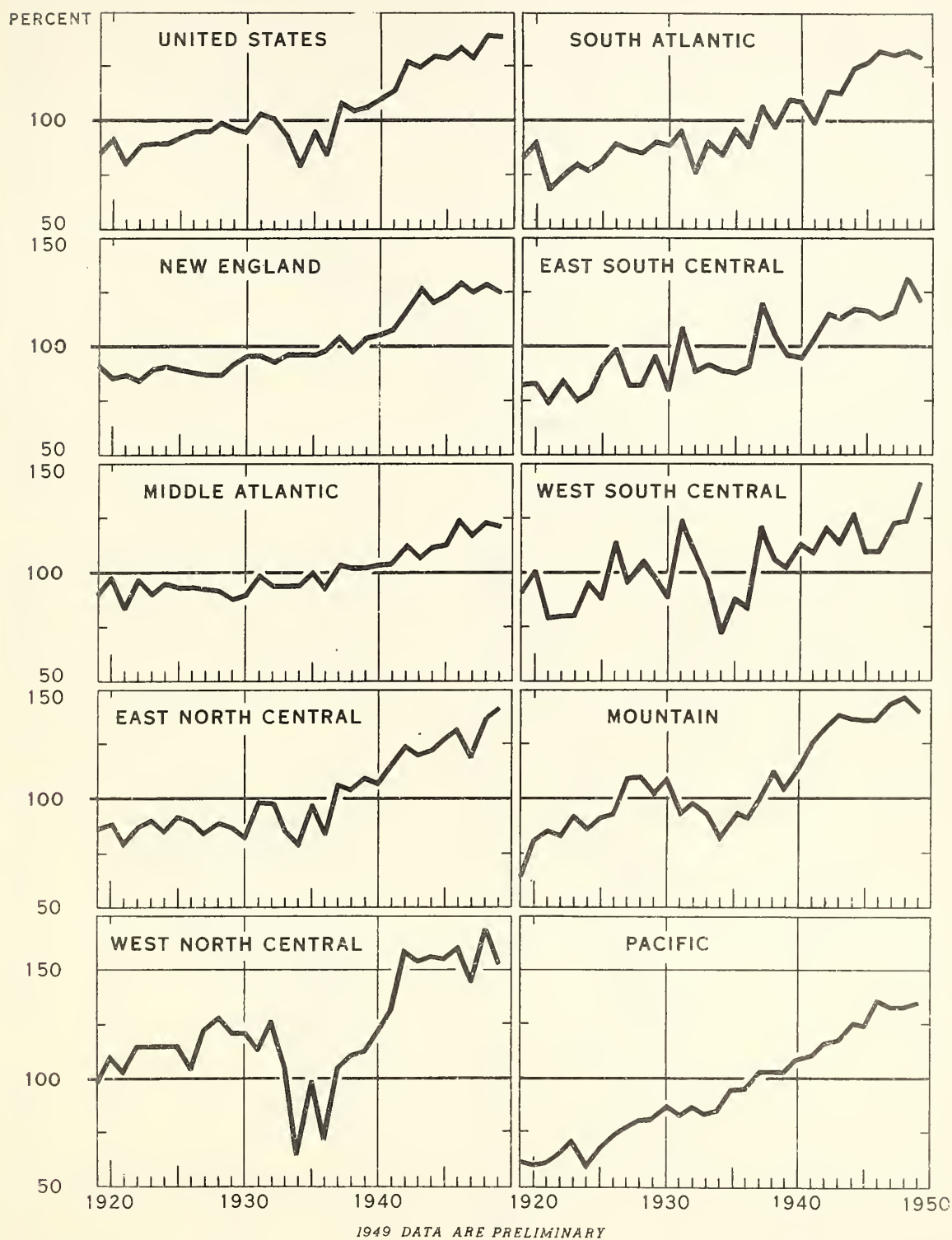


FIGURE 1





# FARM OUTPUT AND EMPLOYMENT

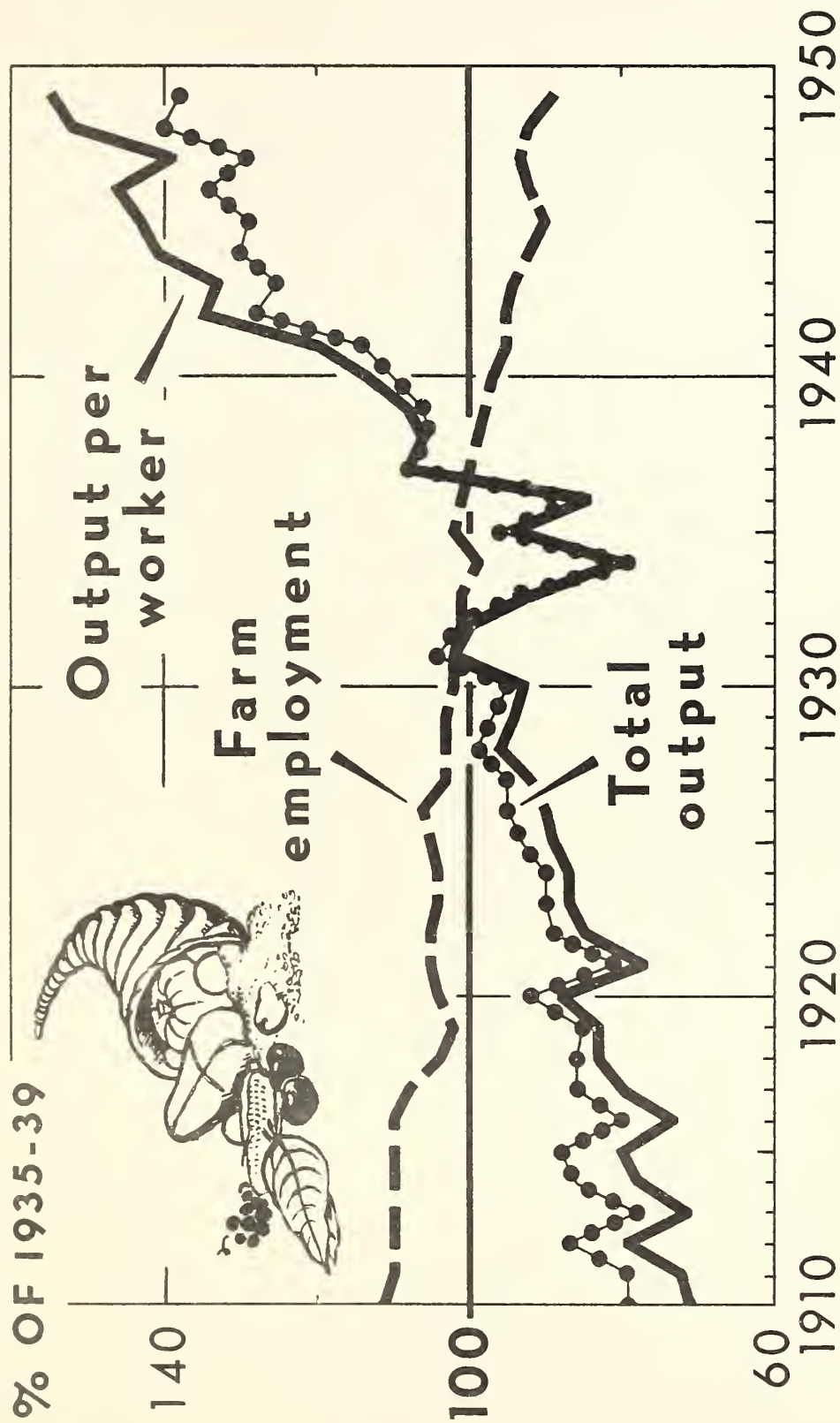
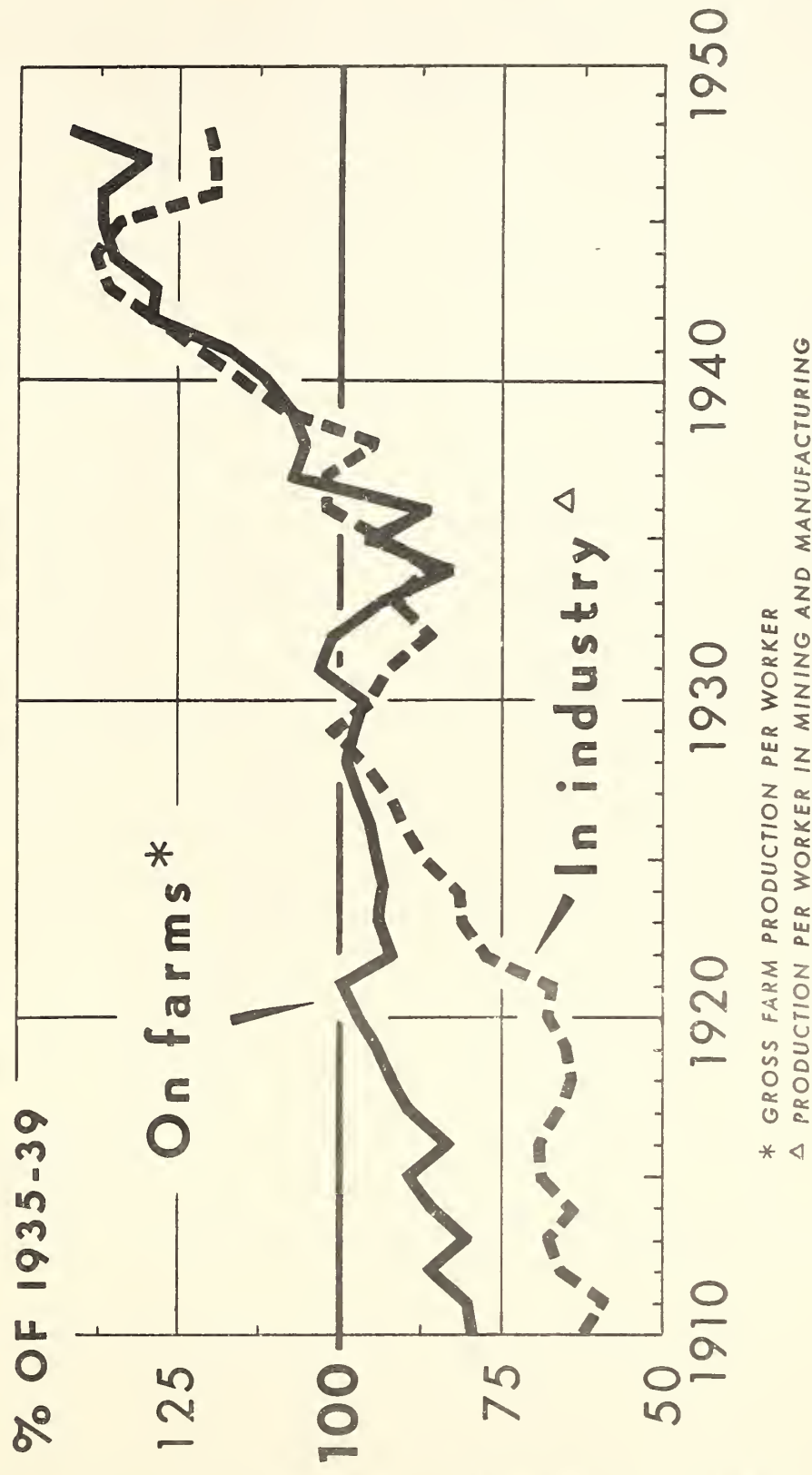


FIGURE 2





# PRODUCTION PER WORKER ON FARMS AND IN INDUSTRY



\* GROSS FARM PRODUCTION PER WORKER

Δ PRODUCTION PER WORKER IN MINING AND MANUFACTURING



# OPERATOR'S NET FARM INCOME, COMMERCIAL FAMILY-OPERATED FARMS, BY TYPE, 1930-48

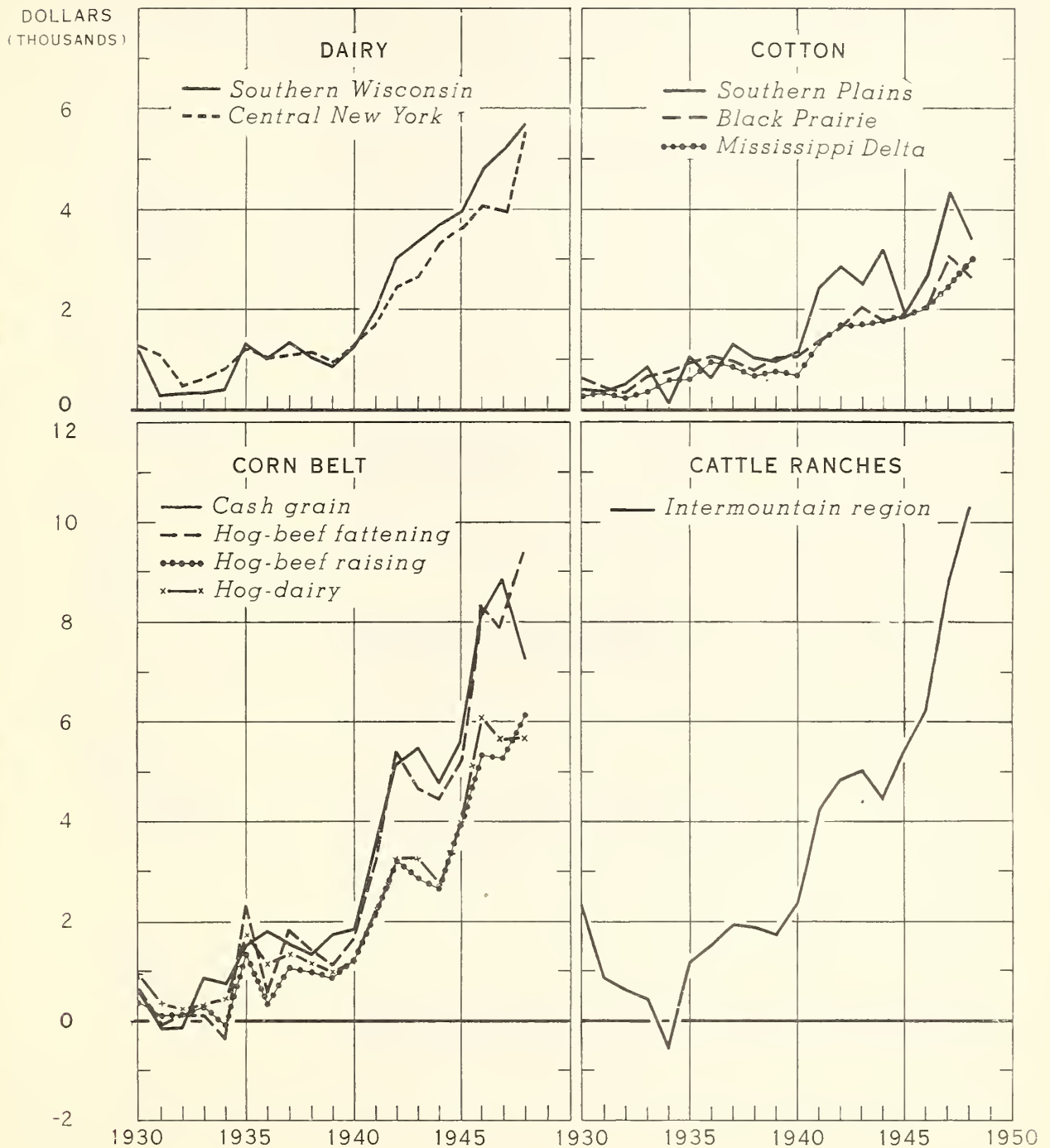


FIGURE 4





# FARM CONSUMPTION OF LIQUID PETROLEUM FUELS

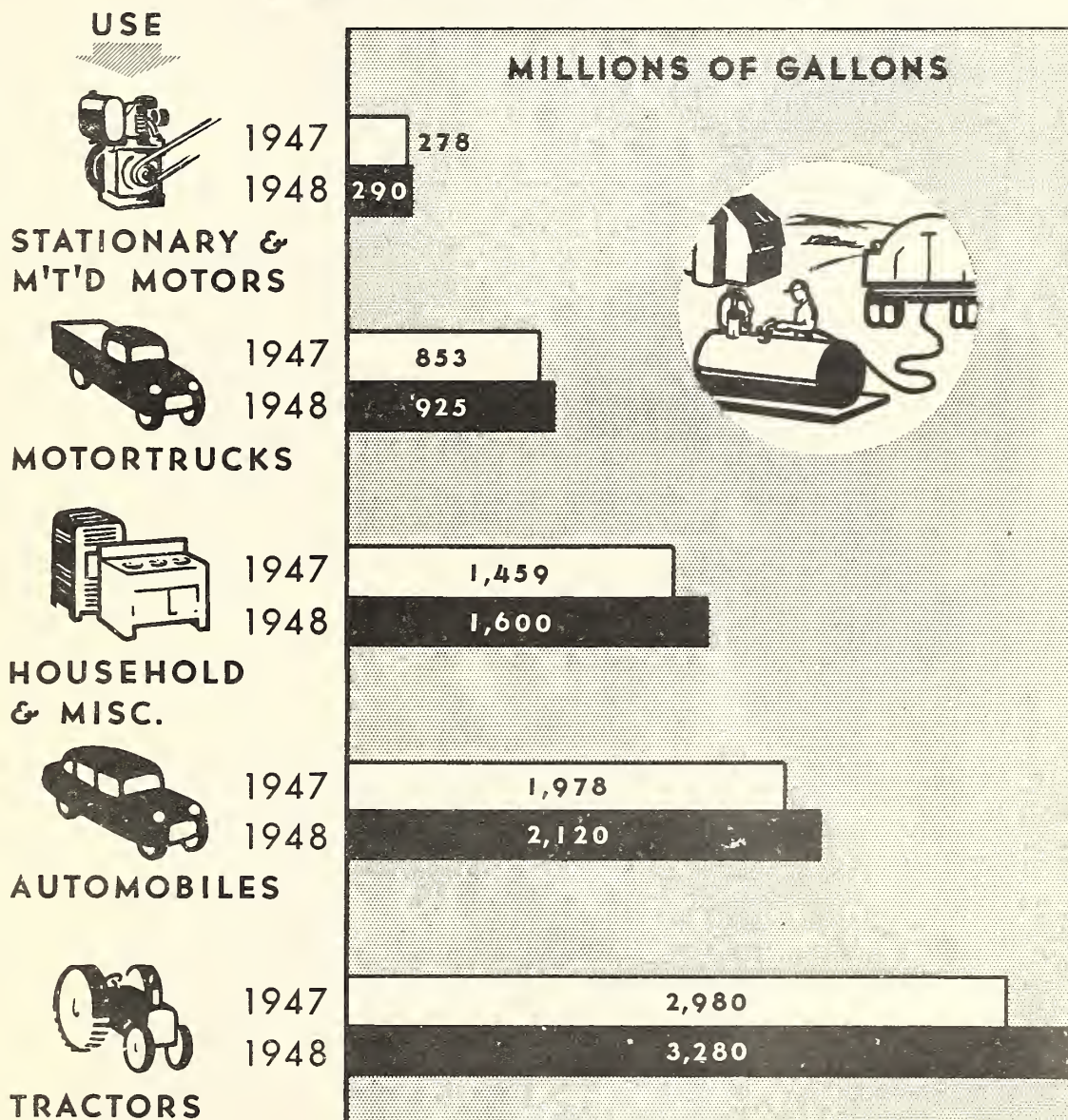


FIGURE 5





# PERCENTAGE CHANGE IN OUTSTANDING FARM-MORTGAGE DEBT, JAN. 1, 1946-JAN. 1, 1949

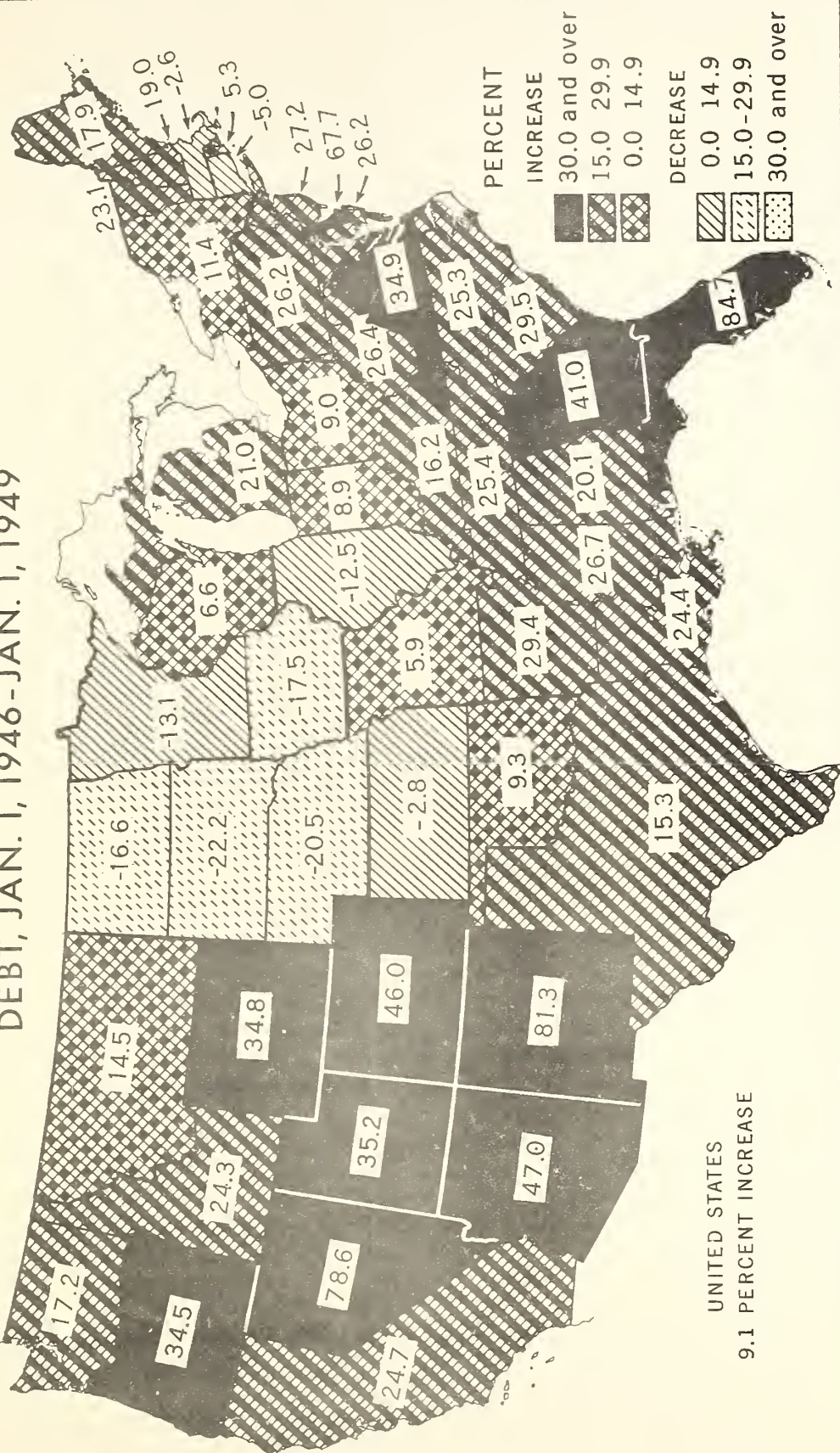


FIGURE 6



# AVERAGE INTEREST RATES ON FARM-MORTGAGE DEBT, UNITED STATES AND MAJOR GEOGRAPHIC DIVISIONS, JANUARY 1, 1910-48

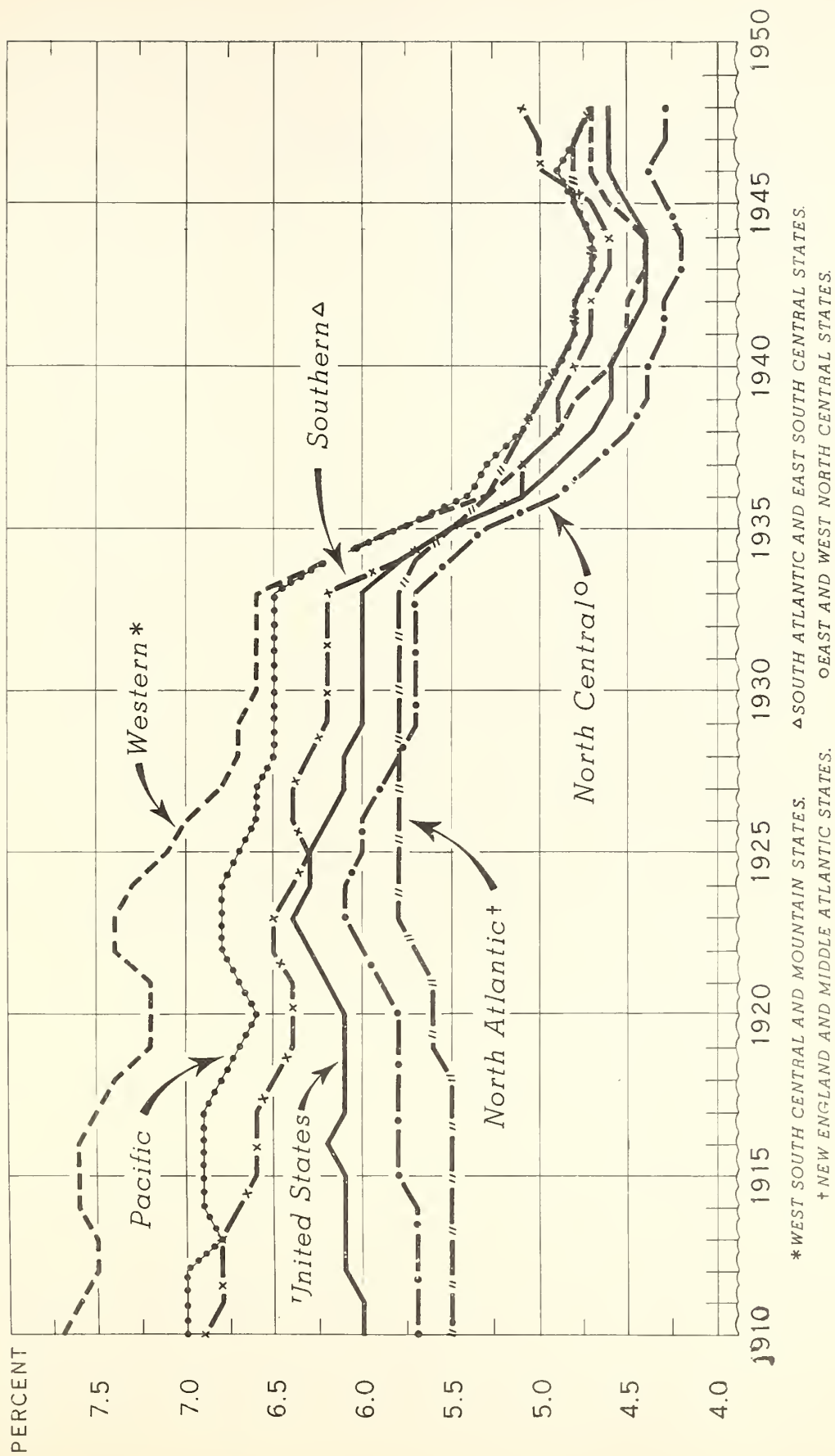


FIGURE 7





# NON-REAL-ESTATE LOANS TO FARMERS BY PRINCIPAL LENDING AGENCIES, UNITED STATES, JAN. 1 AND JULY 1, 1910-49 (EXCLUDES NONRECOURSE COMMODITY LOANS HELD OR GUARANTEED BY CCC)

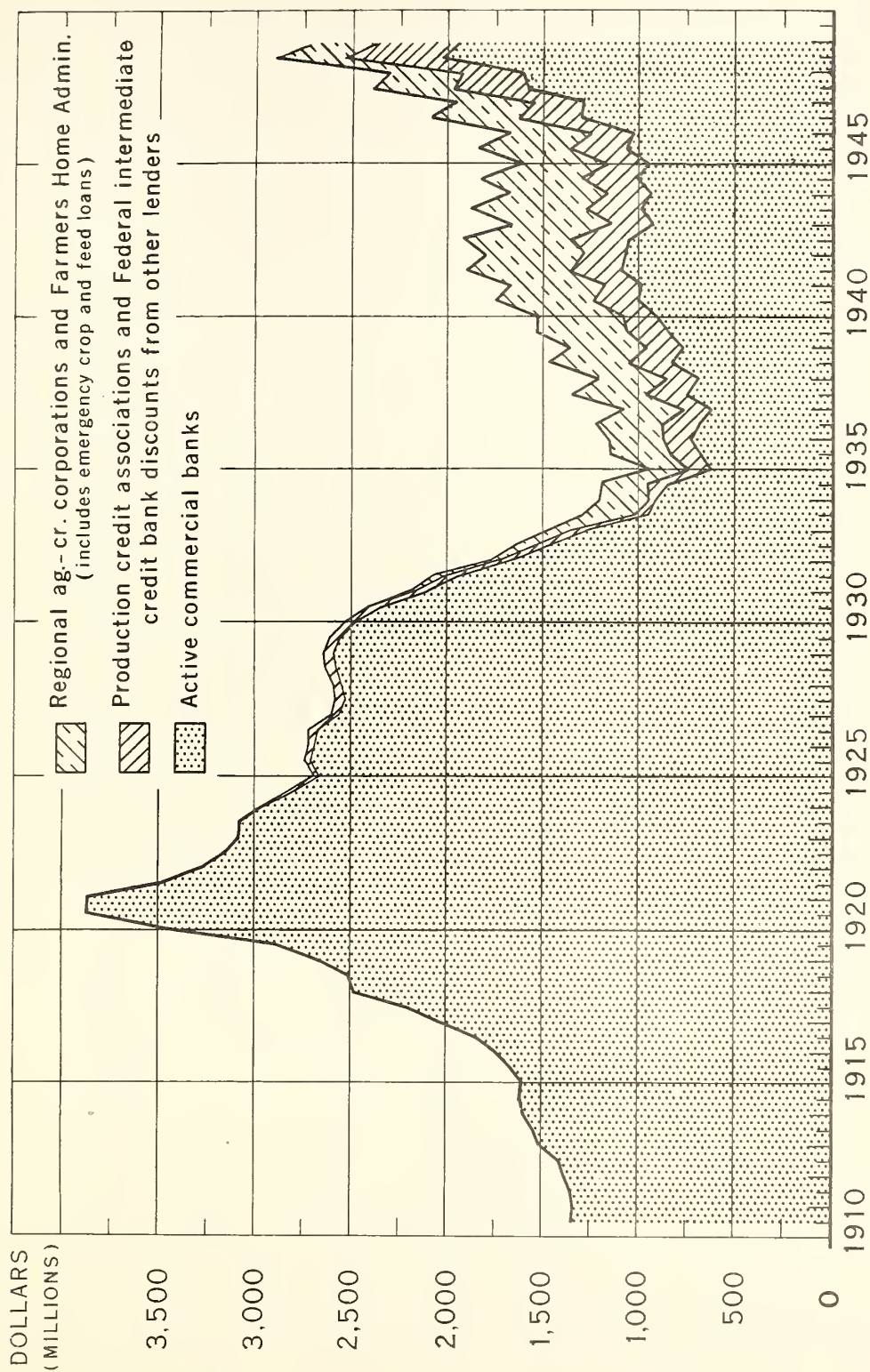


FIGURE 8





# FARM REAL ESTATE TAXES, UNITED STATES, 1910-48

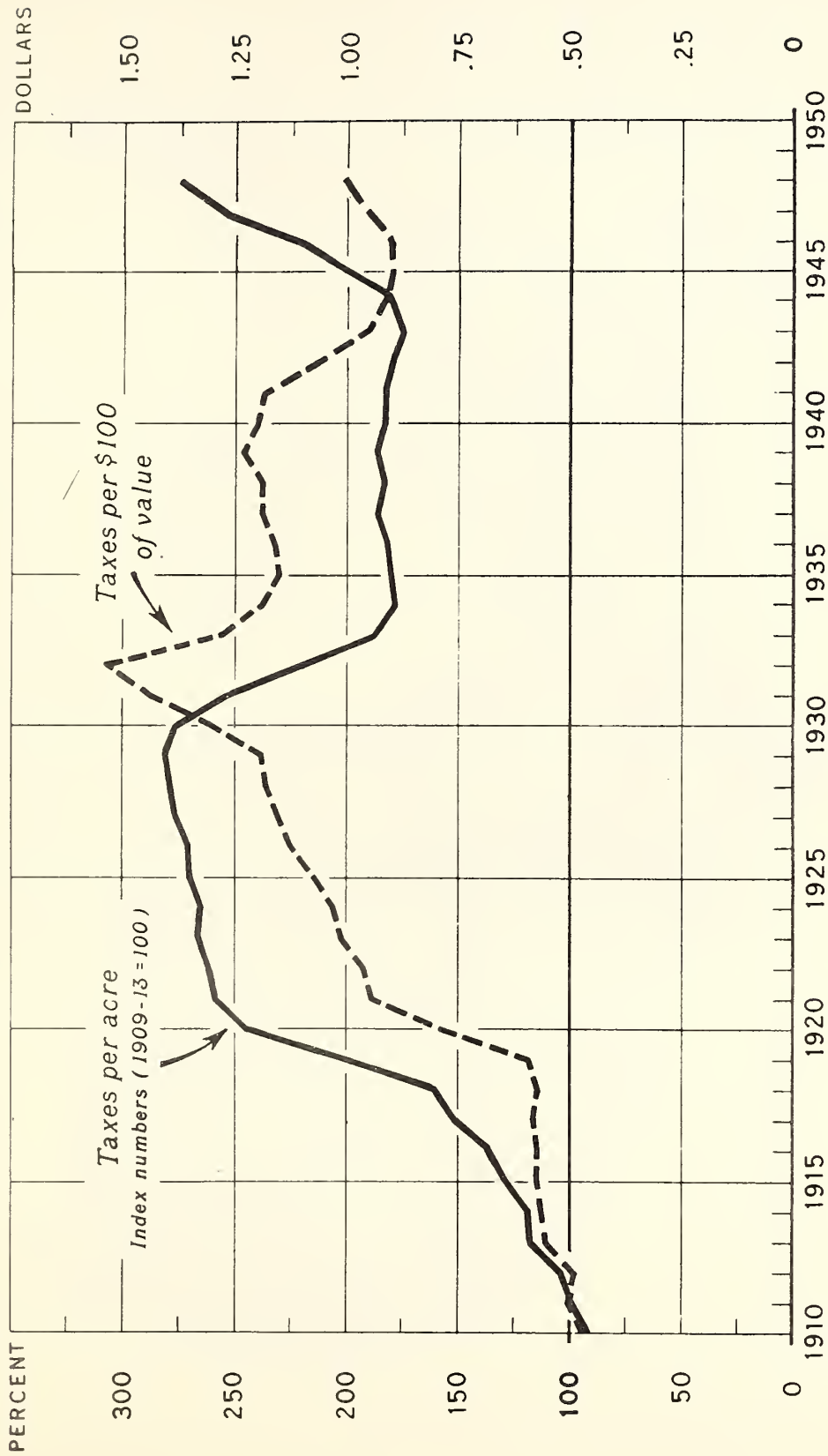
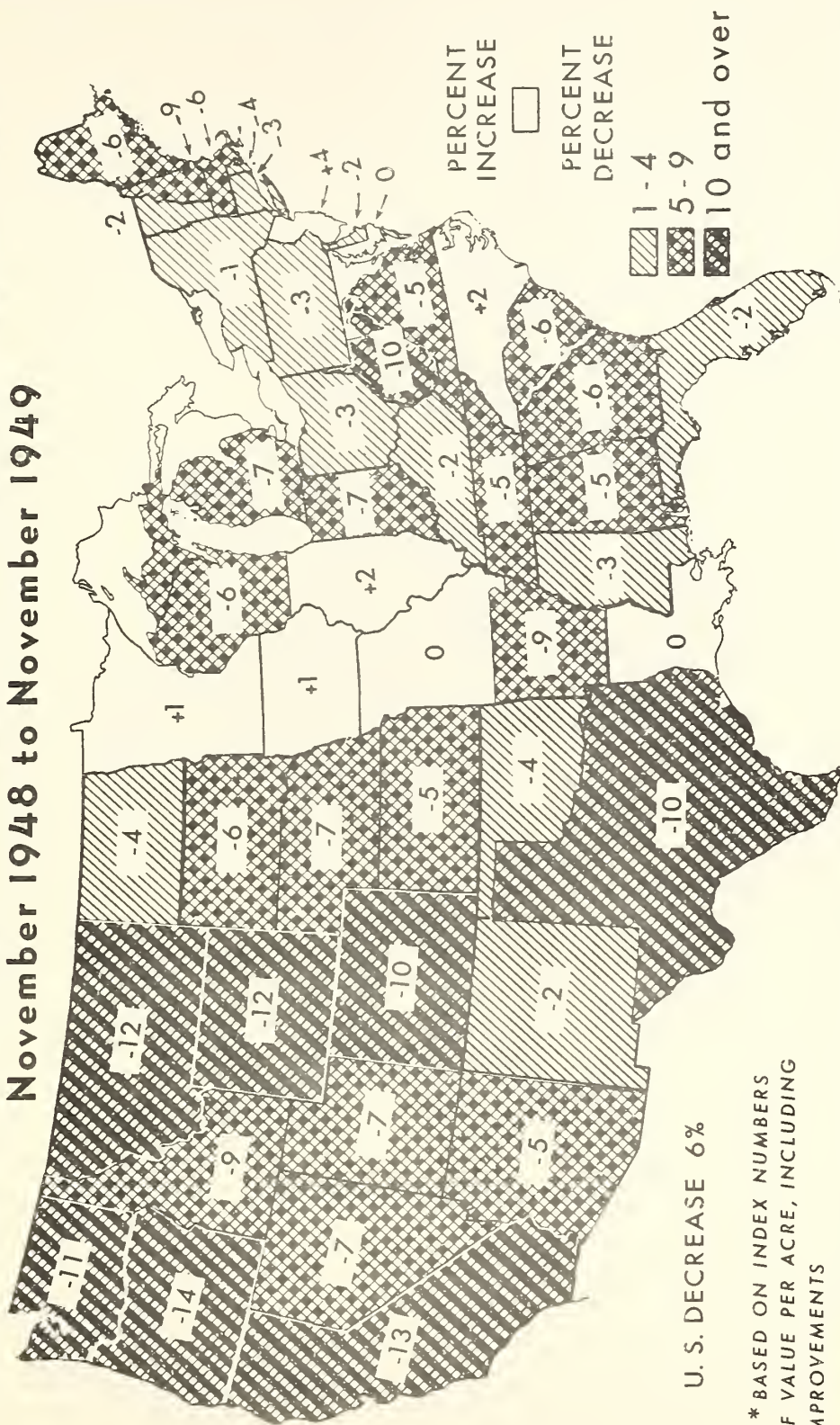


FIGURE 9



# **PERCENTAGE CHANGE IN DOLLAR VALUE OF FARM LAND\*** **November 1948 to November 1949**



\* BASED ON INDEX NUMBERS  
 OF VALUE PER ACRE, INCLUDING  
 IMPROVEMENTS

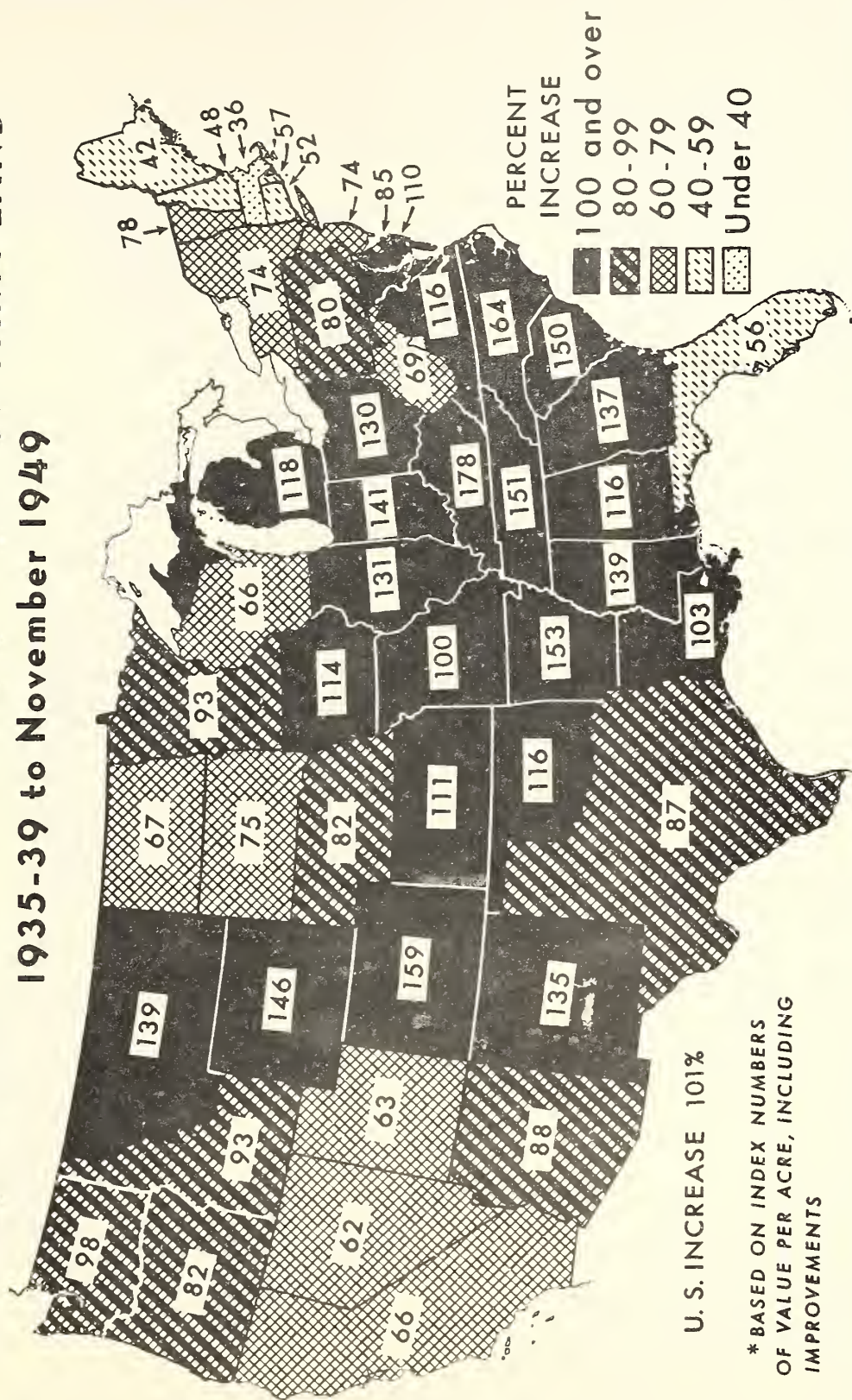
**FIGURE 10**





# PERCENTAGE GAIN IN DOLLAR VALUE OF FARM LAND\*

## 1935-39 to November 1949



\* BASED ON INDEX NUMBERS  
OF VALUE PER ACRE, INCLUDING  
IMPROVEMENTS

U. S. DEPARTMENT OF AGRICULTURE

NEG. 47449-X

BUREAU OF AGRICULTURAL ECONOMICS

FIGURE 11





# MAJOR LAND USE REGIONS

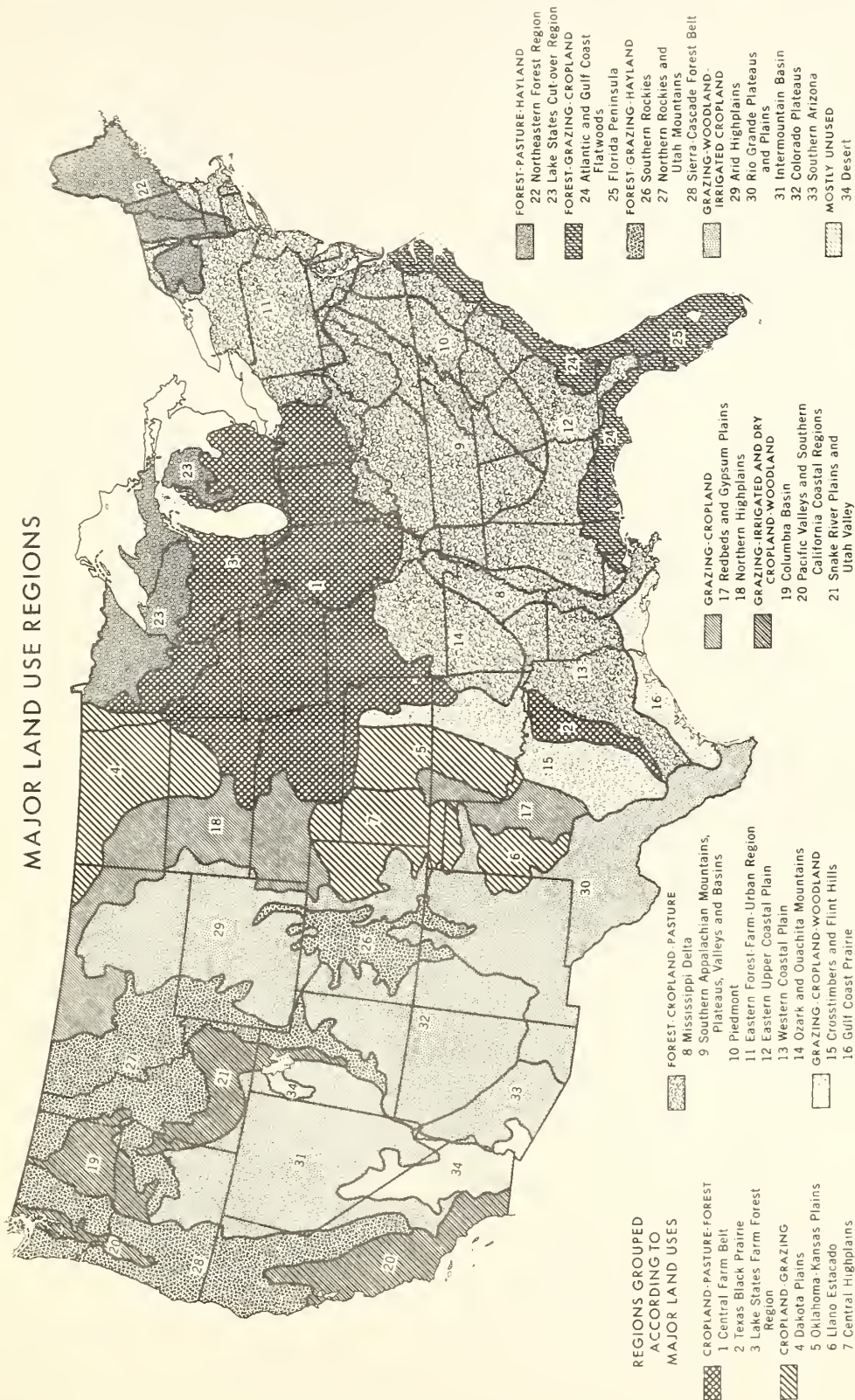


FIGURE 12



# MAJOR USES OF LAND, 1945

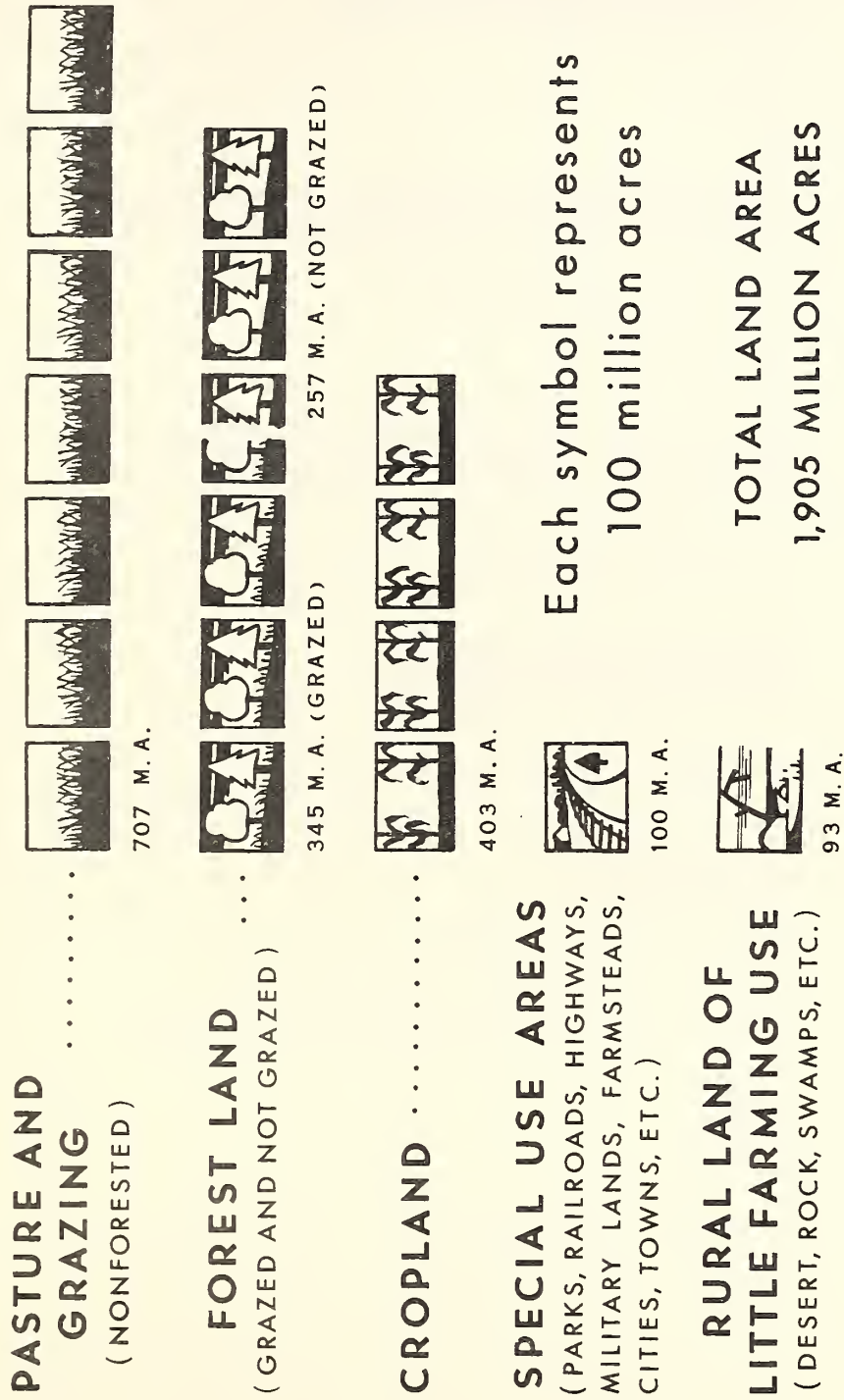


FIGURE 13





# PERCENTAGE OF OWNERS BY TENURE AND AGE, UNITED STATES, 1946

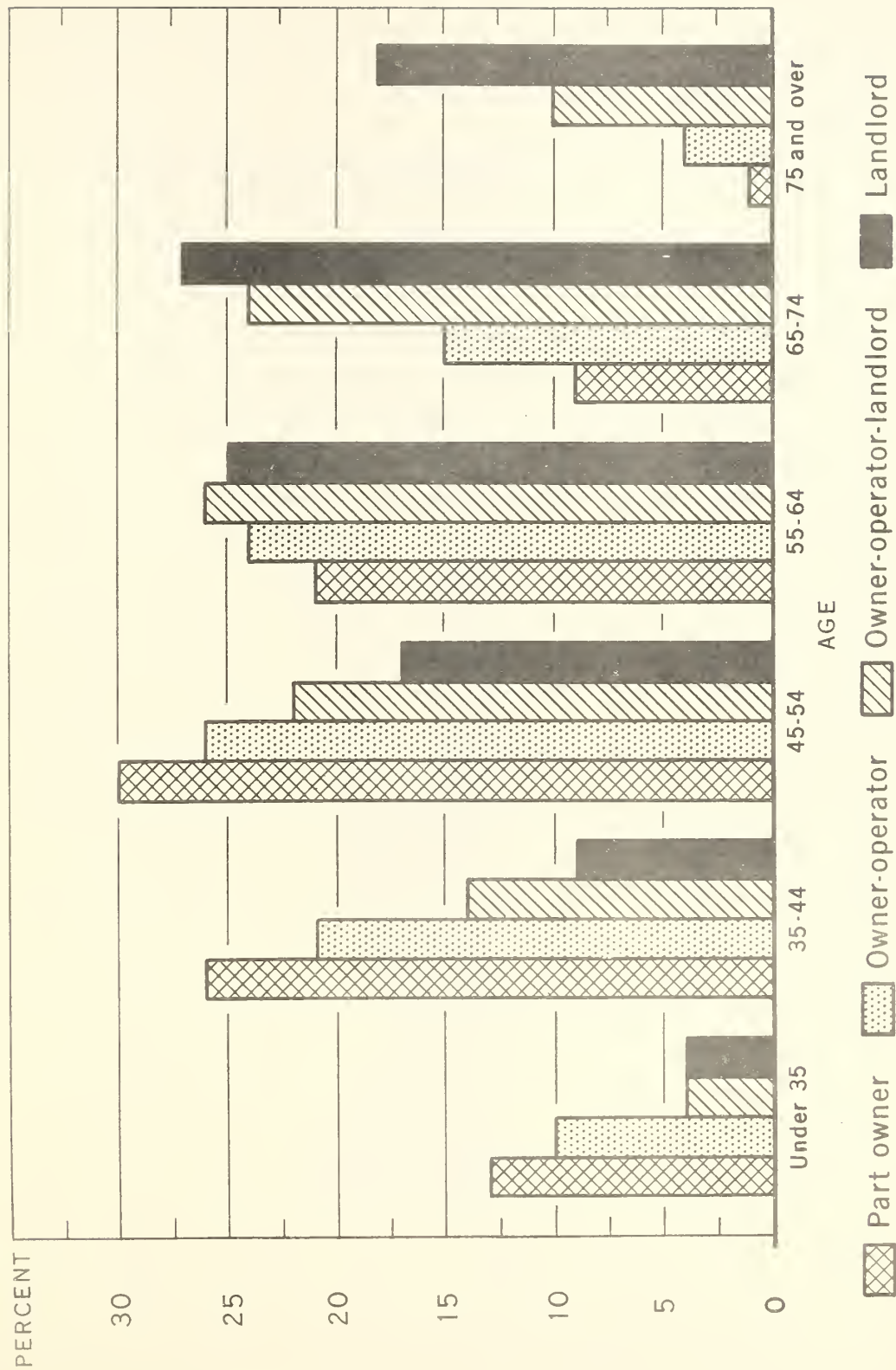
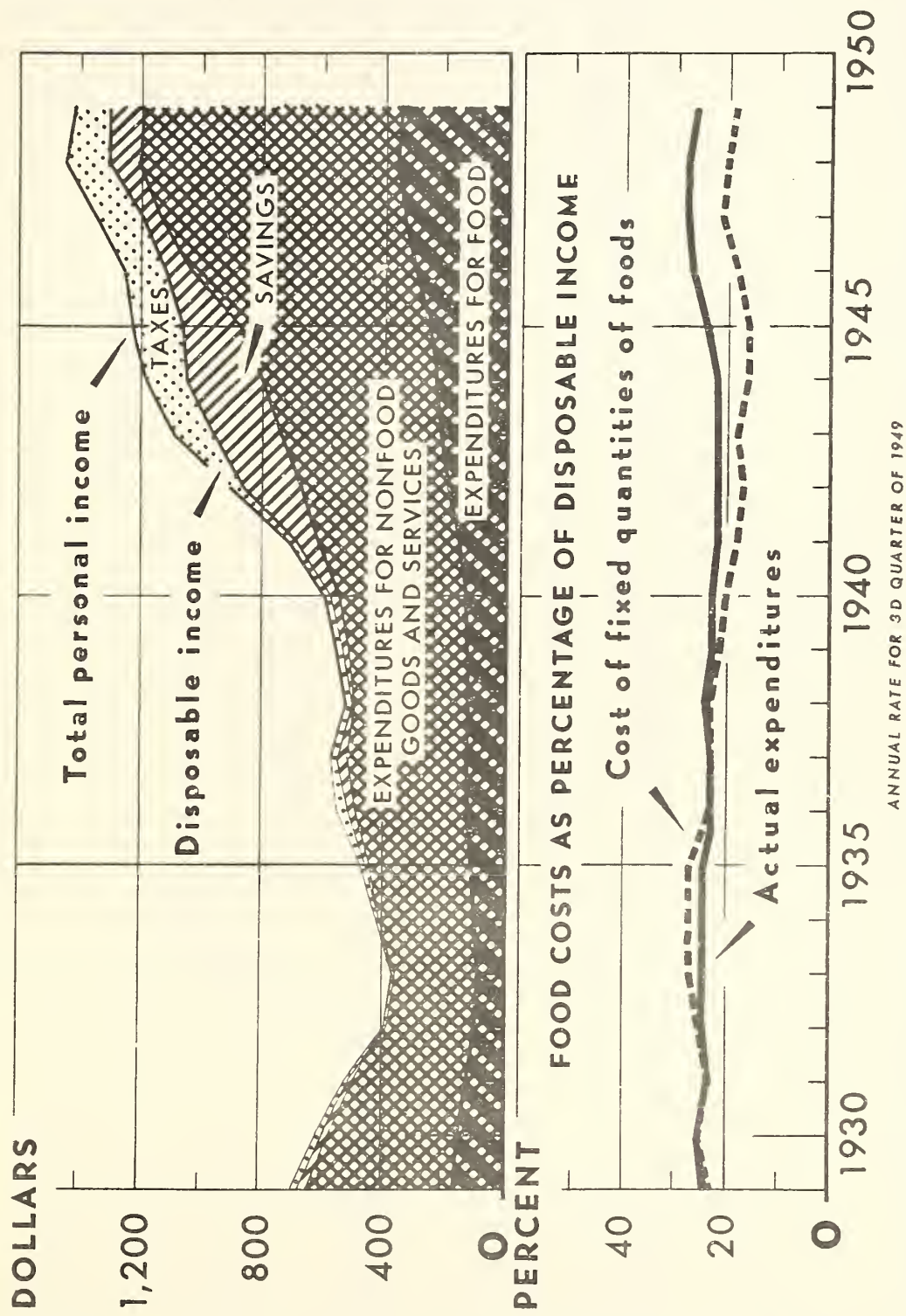


FIGURE 14



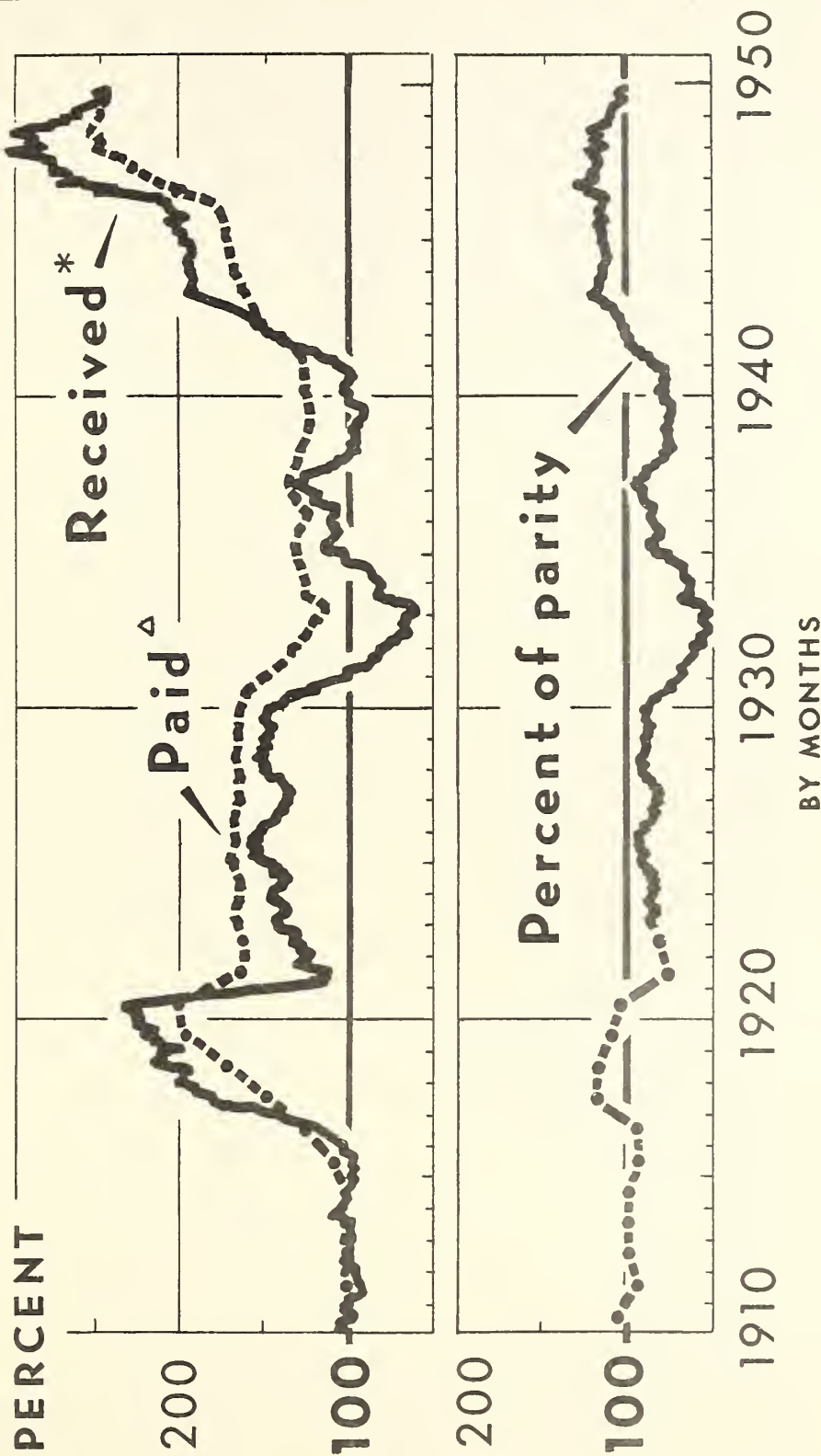


# FOOD COSTS AND CONSUMER INCOMES





# FARMERS' PRICES



\*AUG. 1909 - JULY 1914 = 100

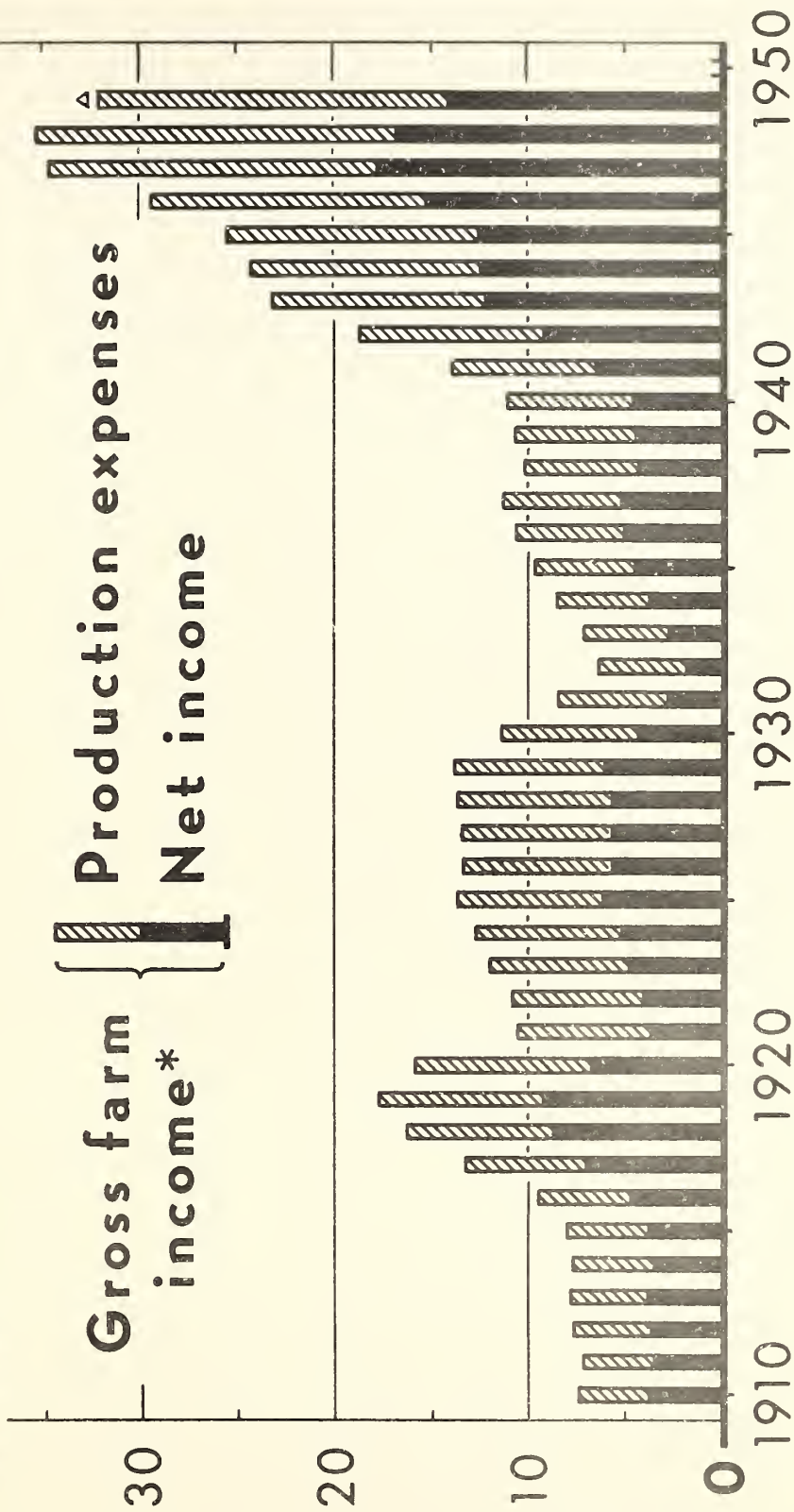
Δ 1910-14 = 100; INCLUDES INTEREST AND TAXES; MONTHLY DATA NOT AVAILABLE, 1910-22





# FARM INCOME AND EXPENSES

BIL. DOLLARS

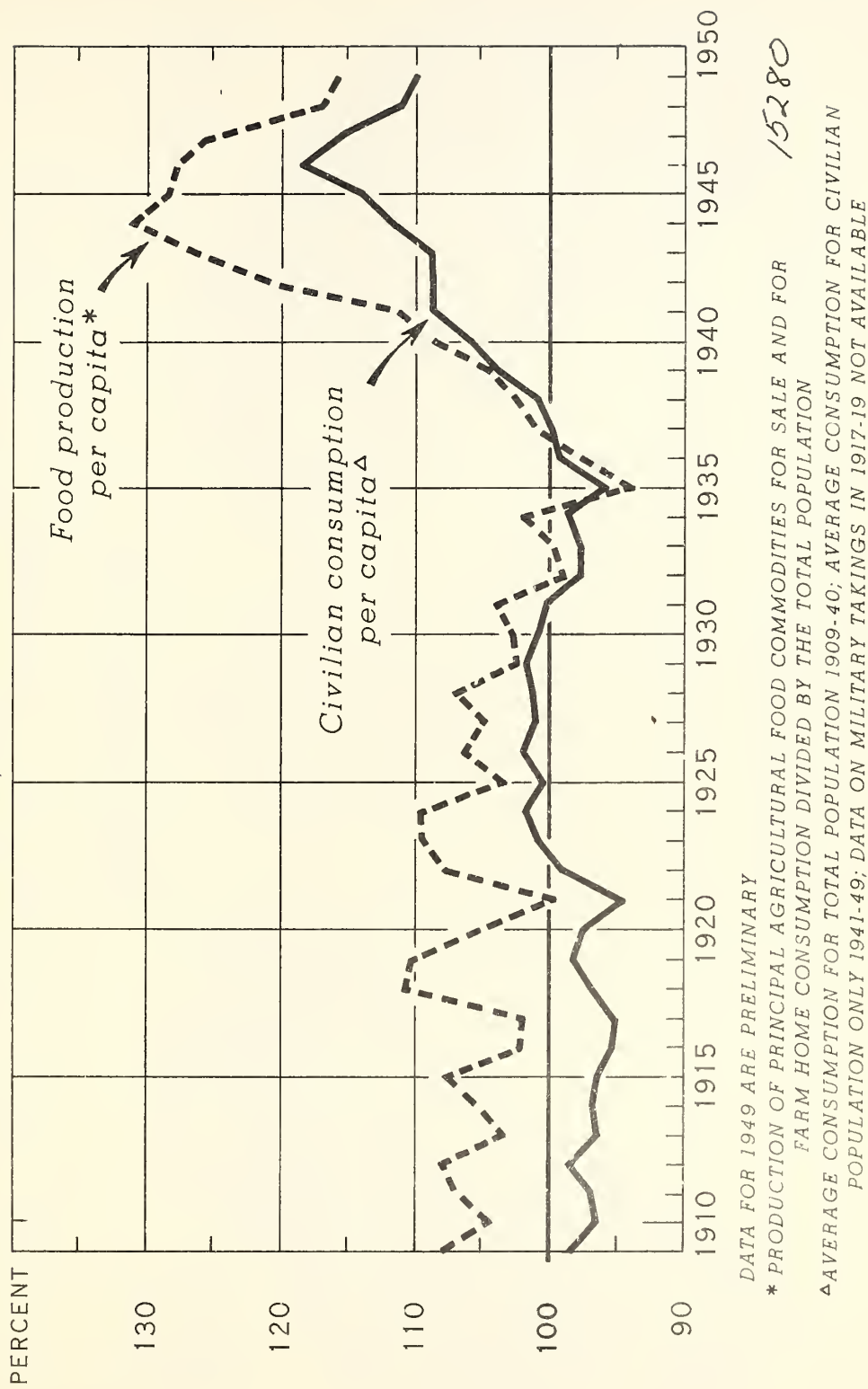


\* INCLUDING GOVERNMENT PAYMENTS, BEGINNING 1933    Δ PRELIMINARY FORECAST





# FOOD PRODUCTION AND CONSUMPTION PER CAPITA, UNITED STATES, 1909-49 INDEX NUMBERS (1935-39 = 100)





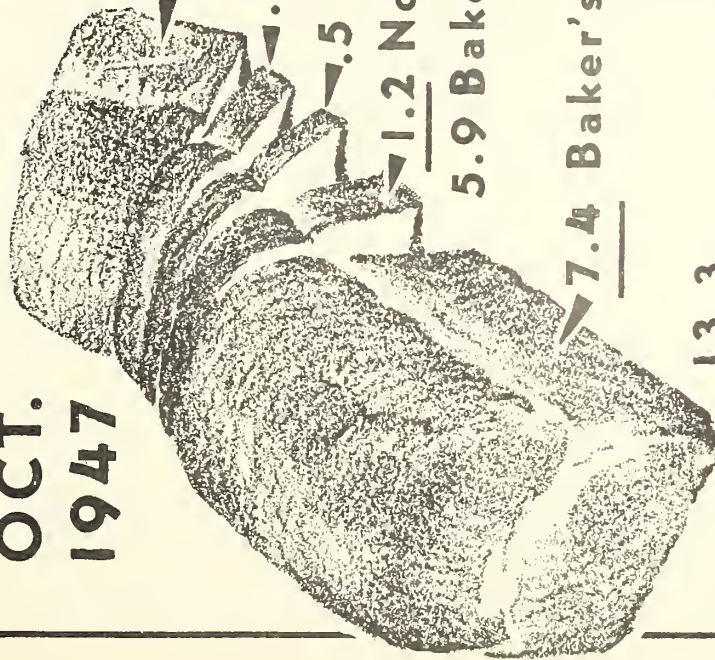
# YOUR LOAF OF BREAD

The Retail Price and Where It Goes

CENTS PER LB.

OCT.  
1947

OCT.  
1949



Wheat farmer	3.3
Miller	.9
Other	.5

2.5

.7

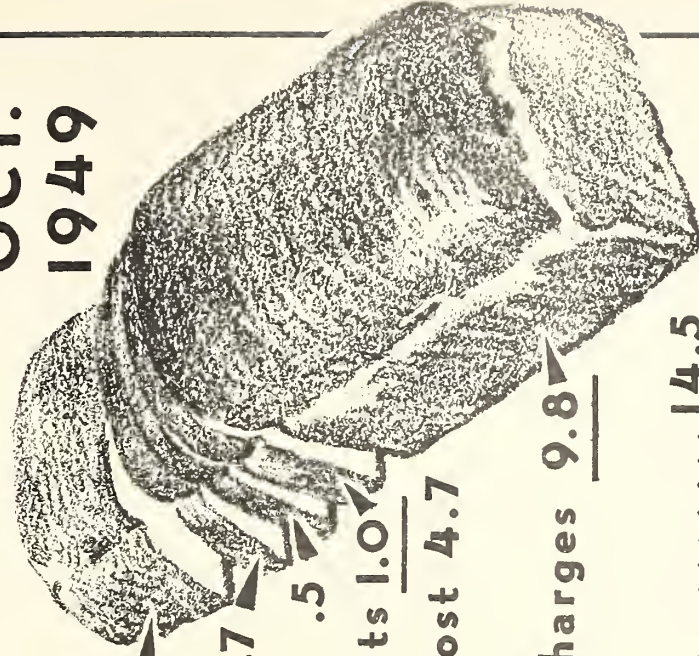
.5

1.2 Nonflour ingredients

5.9 Baker's ingredient cost

7.4 Baker's and retailer's charges

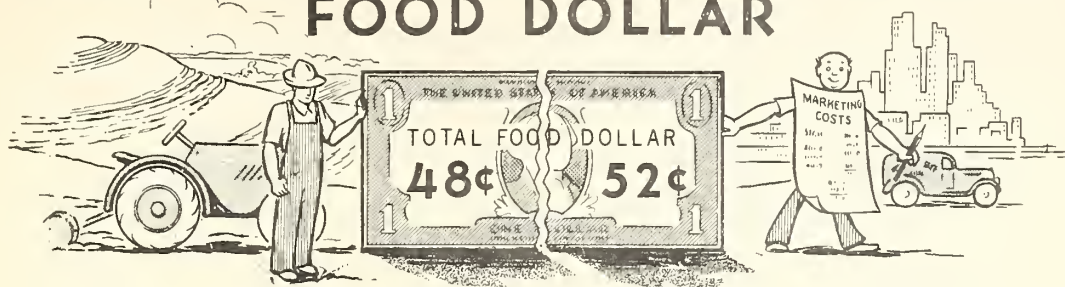
13.3 ..... Retail price





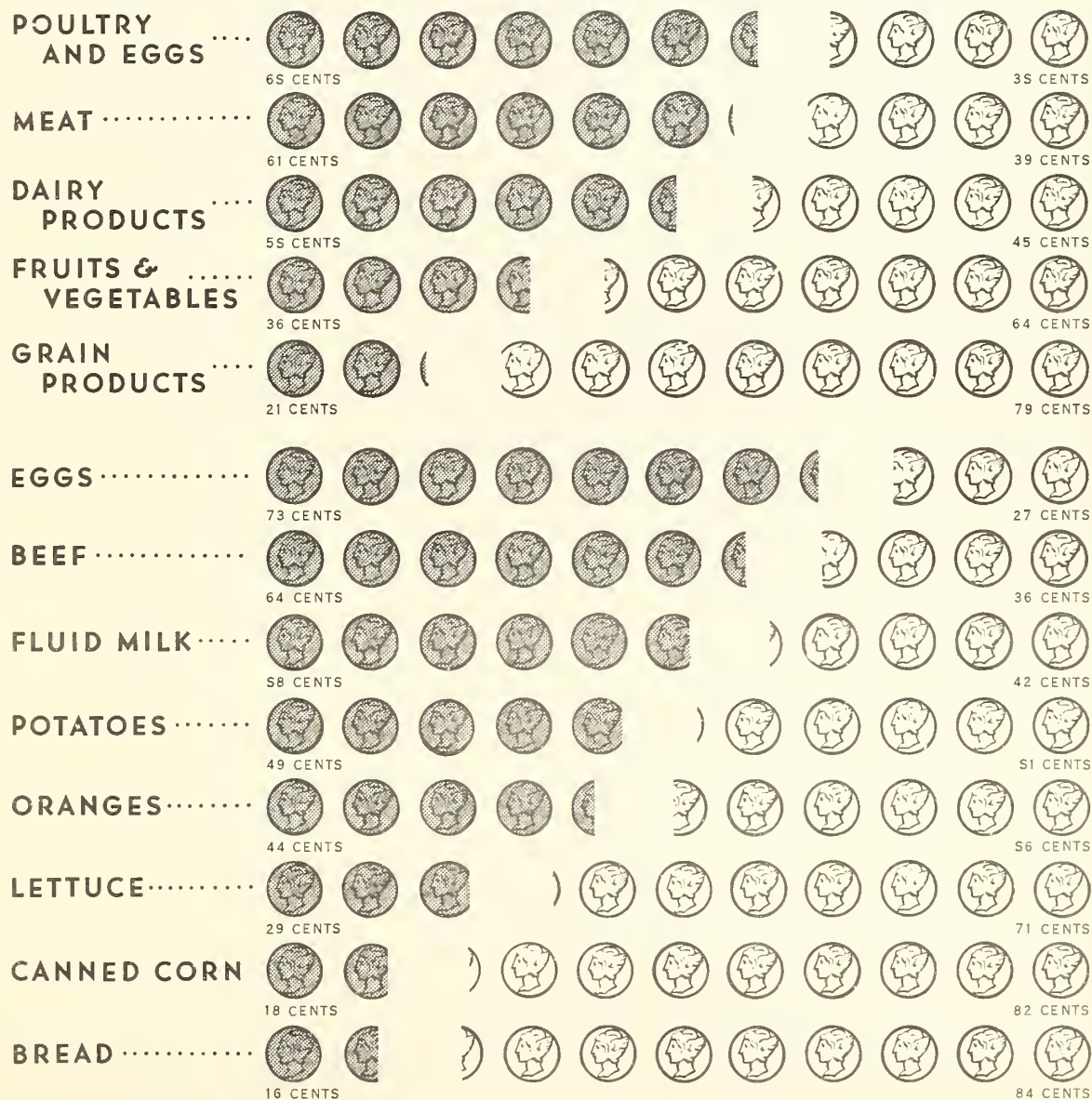


# THE FARMER'S SHARE OF THE FOOD DOLLAR



## FARMER'S SHARE

## MIDDLEMAN'S SHARE



DATA AS OF JULY 1949

FIGURE 20





# MOVEMENT TO AND FROM FARMS, UNITED STATES, 1920-48 \*

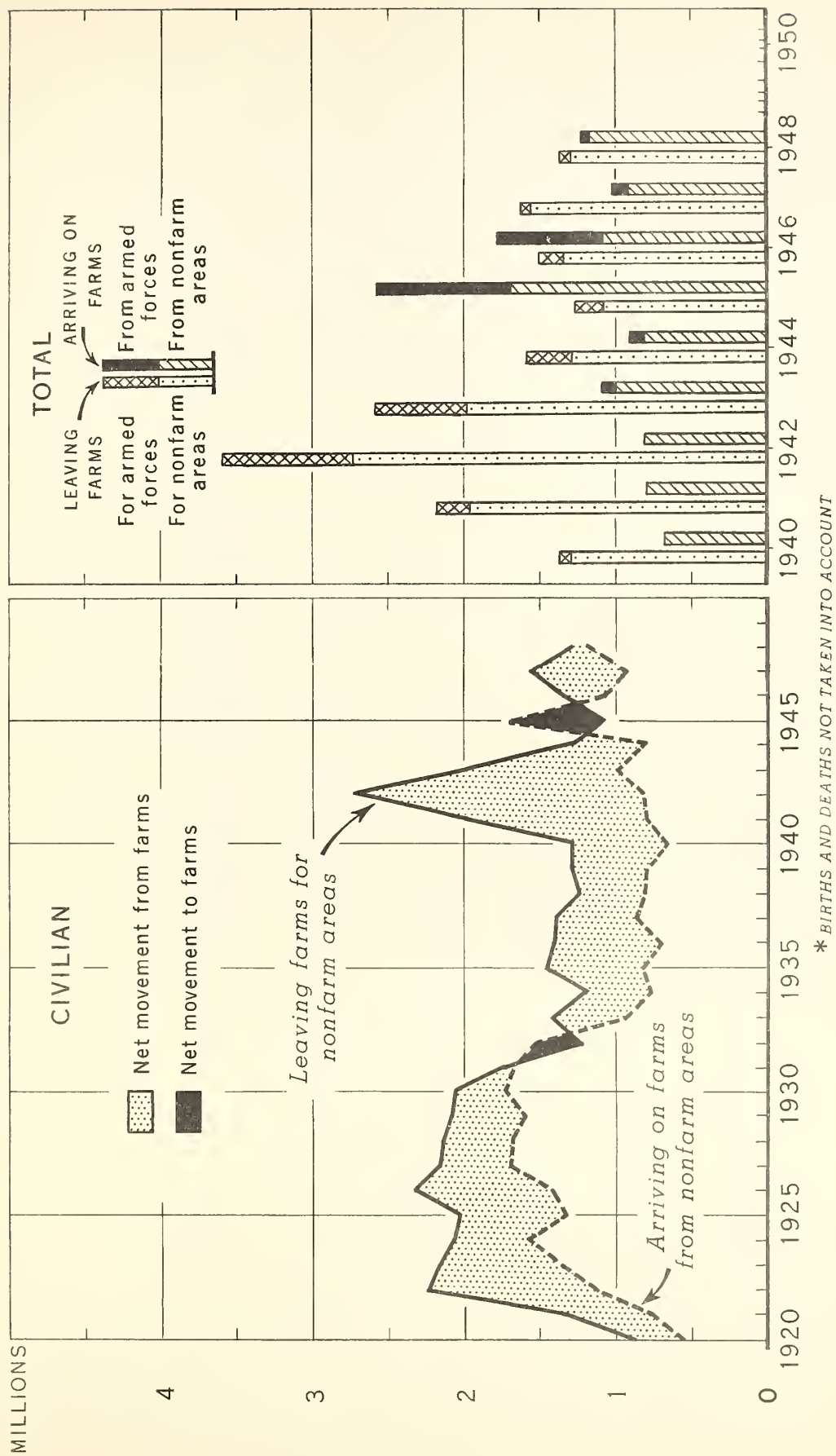


FIGURE 21



# MAIN ACTIVITY DURING YEAR, OF 3,800,000 PERSONS WHO WORKED ON FARMS FOR WAGES IN 1948

MALE

FEMALE

FARM WAGE WORK



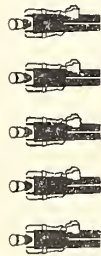
OPERATION OF FARM



UNPAID FARM WORK



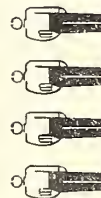
NONFARM WORK



KEEPING HOUSE



ATTENDING SCHOOL



Each symbol represents 100,000 persons





## HOW LIVING DIFFERS IN RURAL AND URBAN COUNTIES













Living Items	Counties with Farm Population of:				
	80% & over	60%-80%	40%-60%	20%-40%	Under 20%
 Births in Hospitals 1946	28%	47%	69%	81%	93%
 Hospital Beds per 100,000 Population 1946	45	131	231	359	432
 Physicians per 100,000 Population 1946	31	44	57	73	112
 Dentists per 100,000 Population 1946	10	19	30	38	60
 Adults with 5 or More Years of School 1940	65%	74%	83%	86%	87%
 Adults Who Have Completed High School 1940	10%	14%	20%	23%	27%
 Farm Dwellings with Electricity 1945	19%	27%	44%	56%	68%
 Farm Dwellings with Telephone 1945	6%	17%	34%	36%	42%
 Farm Dwellings with Radio 1945	49%	61%	70%	73%	75%
 Farm Dwellings with Running Water 1945	7%	11%	21%	32%	47%

FIGURE 23





(c) Crop and Livestock Estimates

Appropriation Act, 1950 .....	\$2,646,900
Anticipated pay adjustment supplemental, 1950 .....	57,000
Activities transferred in 1951 Estimates from "Salaries and expenses, farm housing, Department of Agriculture", to provide for more adequate estimates of current farm construction .....	152,200
Base for 1951 .....	2,856,100
Budget Estimate, 1951 .....	3,356,500
Increase .....	<u>+500,400</u>

SUMMARY OF INCREASES, 1951

To provide adequate statistical data on prices received and paid by farmers .....	+185,900 ✓
To provide for a sample enumerative survey of farm expenditures ..	+257,500
To provide for more adequate estimates of current farm construction .....	+30,400
Increase necessary to place on a full-year basis in 1951, pay adjustments under P. L. 429 which were in effect for only a part of fiscal year 1950 .....	+26,600 ✓

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950 (estimated)	Increase or decrease P.L. 429 adjustment	Other	1951 (estimated)
1. Field crop estimates and reports .....	\$1,112,000	\$1,144,000	+\$10,000	- -	\$1,154,000
2. Fruit, nut, and vegetable estimates and reports .....	335,000	342,000	+3,000	- -	345,000
3. Livestock and poultry estimates and reports ..	400,000	414,000	+4,000	- -	418,000
4. Dairy estimates and reports .....	194,000	199,000	+2,000	- -	201,000
5. Agricultural price estimates and reports ..	398,000	408,900	+3,200	+\$185,900(1)	598,000
6. Farm surveys and employment estimates and reports .....	191,333	196,000	+2,000	+257,500(2)	455,500
7. Farm housing and construction .....	- -	152,200	+2,400	+30,400(3)	185,000
Total pay adjustment costs, P. L. 429 .....	[ - - ]	[59,200]	[+26,600]	[+14,100]	[99,900]
Unobligated balance .....	18,724	- -	- -	- -	- -
Total available .....	<u>2,649,057</u>	<u>2,856,100</u>	<u>+26,600(4)</u>	<u>+473,800</u>	<u>3,356,500</u>
Transfer in 1950 estimates from "Printing and binding, Department of Agriculture" ..	-107,157	- -			

(Continued on next page)

Project	1949	1950 (estimated)	Increase or decrease		1951 (estimated)
			F.L. 429 adjustment:	Other	
Transfer in 1951 estimates from "Farm Housing, Department of Agriculture" .....	- -	-152,200:			
Anticipated pay adjustment supplemental	- -	-57,000:			
Total appropriation or estimate .....	2,541,900:	2,646,900:			

### INCREASES

The increase of \$500,400 in this item for 1951 is composed of the following:

- (1) Increase of \$185,900 under the project "Agricultural price estimates and reports" to improve the quality of the estimates of prices received and prices paid by farmers.

Objective: To provide additional data on prices received and prices paid by farmers in order to increase the accuracy and usefulness of prices received estimates for both program and income estimating purposes and to assure more accurate basic data for parity index and parity price calculations. These data on prices received by farmers are compiled monthly on an average of 125 items sold by farmers covering food grains, feed grains and hay, tobacco, cotton, oil crops, fruit, truck crops, and livestock and livestock products. The data on prices paid by farmers cover all main articles bought by farmers for use either in farm family living or farm production.

Problem and Significance: The work involved in preparing indexes of prices received and prices paid by farmers far exceed that which existed when the indexes were first prepared, because of the introduction of price support and marketing agreement programs. There is need for more detailed series than the over-all average prices now available, for example, series reflecting prices for products in different positions, such as on-tree, on farm, at incoming packing house door, f.o.b., packed at shipping point, etc. These series would show equivalent in-field returns for vegetables that actually may be sold in bulk at the packing house, and equivalent on-tree returns for fruits that may be sold either at incoming packing house door or f.o.b. shipping point. Comparable series would cover returns at the incoming packing house door. Series should be prepared which can be adjusted for different points of sale by the inclusion or exclusion of costs of handling, such as picking costs, hauling costs, grading costs, packing costs, etc. Differentiation also needs to be made between varying prices paid for a commodity utilized in different ways, such as for fresh use as distinguished from a processing use. Agricultural programs need data in more detail than are now being furnished.

Plan of Work: With the funds now available, data must be collected almost entirely through the use of mail questionnaires sent to dealers, merchants, and farmers. It is becoming increasingly difficult to secure adequate reports by mail from these respondents. For some commodities the questionnaires returned are now so few as to raise serious questions as to the accuracy of the price estimates based on such small samples. That a change



in the parity index of one point may amount to millions of dollars emphasizes the need for great accuracy. The situation can be met adequately only through personal contacts with respondents at regular intervals, by maintaining continuity in reporting (through questionnaires) by collection of supplementary data through personal interviews, and by constant checking of actual sales on a sample basis to measure the factors of error, and thus provide statistical control on the mailed returns. This increase would be used to provide for gathering data by personal interview, and thereby increasing accuracy, which would make such material much more useful.

- (2) Increase of \$257,500 under the project "Farm surveys and employment estimates and reports", for a survey of farmers' expenditures for production.

Objective: To obtain comprehensive current information concerning farmers' expenditures for production. Changes in farming practices have resulted in so many changes in the character and amount of expenditures that existing data are largely obsolete. Thus, the shift from horse to tractor-drawn farm equipment has resulted in profound changes in the whole farm economy. Drastic changes in price levels, too, require greater consideration of net income in addition to gross income as measures of the economic position of the farmer. Finally, the expanded demand for farm programs has brought needs for data that are far more extensive and far more accurate than were needed previously.

Problem and Significance: Estimates of production expenses and net farm income are now made currently for the United States as a whole, but better data must be gathered in order to assure reliable estimates. Such accurate and detailed data on farm expenses are needed not only to improve the national estimates of farmers' net income, but also to develop State estimates of production expenses and net farm income. It is proposed that State estimates of net farm income be provided and that better expenditure data be developed on a regional or State basis. Many business organizations and farm or trade journals need expenditure data as a measure of the farm market for industrial products; however, the Bureau's major use for these data is to derive farmers' net income. This survey is a non-recurring item, the purpose of which is to supply statistical data needed for several lines of work of the Bureau. It will furnish a substantial body of information which will supplement and amplify the statistical base for all analytical work dealing with costs and income.

With prices of farm products falling faster than the prices farmers pay for goods and services used in production, the cost side of farming is receiving increasingly close attention. Demands for information on costs usually are in terms of specific commodities, areas, or types of farms.

Many investigations relating to costs and returns of farming are seriously handicapped by the lack of adequate information on farm production expenses, by type and size of farms. Most of the cost information currently available relates to larger than average farms operated under superior management. Data on quantities of various items used in production on representative farms, by type of farm, are available for only a few areas and do not include all items of expenses.

Plan of Work: Information would be gathered through personal interviews and would cover 12,000 farms in 814 counties scattered throughout the 48 States. The production expenditure data gathered by the Bureau of Agricultural Economics would, in conjunction with information on family living expenditures to be



collected by the Bureau of Human Nutrition and Home Economics, comprise the rural counterpart of a similar survey projected by the Bureau of Labor Statistics to investigate urban expenditure patterns. The schedules also would be planned so as to yield information which would fill the gaps in the Census data. The Census is taken only once in every 5 years and provides only a part of the information needed. The information on farm production expenditures which would be obtained in this survey would supplement the data currently being obtained in a few of the major production situations. It would make possible the servicing of requests for information on farm costs and returns concerning areas for which data are not now available.

(3) An increase of \$30,400 under the project "Farm housing and construction", to provide for more adequate estimates of current farm construction.

Objective: To gather current data on farm construction as required by Section V of the Farm Housing Act of 1949, which will reflect satisfactorily "the progress being made toward meeting housing needs". Specific information will be gathered on:

- (a) New construction; number, type, size, and dollar volume for dwelling units.
- (b) Improvement of existing dwellings: Number of units, kind of improvement - for example, addition of rooms, improvement of foundation, addition of sanitary facilities, installation of electricity.
- (c) Maintenance repairs.
- (d) Demolition, losses, and conversion to non-farm use.

Problem and Significance: The Farm Housing Act of 1949 provided for gathering information on farm housing and farm construction. With funds provided in 1950 an inventory of farm structures is being made to ascertain for the country as a whole and for two major regions the number and type of houses and other structures on farms; the size, condition of, and facilities available in farm houses; the number of people housed; also other characteristics of houses and other farm buildings. The houses and other buildings on farms will be related to sizes and types of farms and to farm income and tenure in order that economic analyses (to be performed under "Economic Investigations") may determine how many farm families who live in inadequate houses have sufficient income or security of tenure to pay for improved housing. Estimates of current construction activity will be made also in 1950 in order to provide a base for measuring the year-to-year changes in the progress being made toward meeting housing and other farm building needs.

Plan of Work: In 1951 it will be necessary (a) to complete the tabulation and statistical analysis of the data gathered during the current year, and (b) to gather new annual information on construction, remodeling, and repair of farm structures together with data on improvements and changes in the characteristics of the farm dwellings inventory. The areas to be surveyed in 1951 would include 45,000 to 50,000 farms, from which it would be expected to interview approximately 11,000 to 12,000 farms. From the data obtained estimates would be developed of new construction, improvements of existing structures, maintenance and demolition, on a national basis and for two major regions.

(4) Increase of \$26,600 to place P.L.429 pay adjustments on full year basis in 1951

# CROP AND LIVESTOCK ESTIMATES

## Special Research Projects

Finan- cial Project No.	RMA Project No.	Project Title	1949	1950 :(estimated)	Adjustments for 1951 P. L. 429	1951 :(estimated)
5	SRF- 2-63	Research into the statis- tics of Agriculture and the associated statistical theory ...	19,981	21,200	+100	21,300
		Total, Special Research Fund .....	19,981	21,200	+100	21,300

### CHANGE IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

Crop and livestock estimates: For collecting, compiling, abstracting, analyzing, summarizing, interpreting, and publishing data relating to agriculture, including crop and livestock estimates, acreage, yield, grades, staples of cotton, stocks, and value of farm crops and numbers, grades, and value of livestock and livestock products on farms, production, distribution, and consumption of turpentine and rosin pursuant to the Act of August 15, 1935 (5 U. S. C. 556b), and for the collection and publication of statistics of peanuts as provided by the Act approved June 24, 1936, as amended May 12, 1938 (7 U. S. C. 951-957), [~~\$2,646,900~~] and data on farm construction as provided by Title V of the Housing Act of 1949 (Public Law 171), \$3,356,500: Provided, That no part of the funds herein appropriated shall be available for any expense incident to ascertaining, collating, or publishing a report stating the intention of farmers as to the acreage to be planted in cotton, or for estimates of apple production for other than the commercial crop.

The change is proposed to provide appropriation language making these funds available for the collection and analysis of data on farm construction as authorized under Section 506 of the "Housing Act of 1949" (Public Law 171, 81st Congress).



STATUS OF PROGRAM

*Inserted  
in  
Record*

Current Activities: This work involves the collection, analysis, and publication of current basic data relating to acreage, yields per acre, production, stocks and utilization of crops, livestock inventory and production of livestock products, crop production and yield indices, prices received and paid by farmers, and farm wages and farm employment. From the prices paid and prices received series are calculated the price indices and parity prices. This fact-gathering work is carried on wherever possible in cooperation with State Departments of Agriculture or other State agencies.

The basic data collected and published are used extensively by producers, growers' associations, market officials, trade groups, many types of institutions and organizations, local, State and national governments, research and extension workers, and the economic research workers of the Bureau of Agricultural Economics itself.

Selected Examples of Recent Progress:

1. A cooperative arrangement was initiated with the Census Bureau whereby that agency furnishes the respective State Statisticians' offices cotton-ginners' reports adequate to meet specific requirements with respect to geographic distribution, timing, and size of sample, thereby aiding appraisal of ginning progress and forecasts of future volume. The Bureau of Agricultural Economics also continued to appraise forecasting procedures used in estimating acreage and forecasting production of cotton. Preliminary use and study of cotton gin reports showed that the procedure resulted in a better geographic distribution of the gin sample, a larger return than obtained formerly, and about the same bias in the data as for years when reports were mailed direct to statisticians. During the current year special emphasis will be placed on improving the gin survey.
2. Anticipating the time when uses of alfalfa for purposes other than for hay may become so significant as to outmode current methods of estimating acreage and production of hay, pilot surveys were made in a few States concerning utilization of green alfalfa by dehydrating plants and for silage. New York data revealed that the first cut of alfalfa and other hay crops is used for silage on a significant number of farms. This method of harvesting retains more of the feeding value of the green plant than by curing it; furthermore, it avoids spoilage of hay by rains common at that season. Subsequent cuttings are used for hay. This practice is spreading and increasing in popularity to the extent that it may significantly affect reported yields of hay in a number of States. Extension of these studies is planned in the current year.

3. An improvement was made in the method of computing monthly prices for 20 commercial vegetables produced for the fresh market. Formerly the State prices for each of these crops were weighted by recorded shipments by rail and truck. The new method is to weight these prices by estimates of monthly sales in each State. Revision of estimates of potato utilization, by States, for the years 1929 through 1944 have been prepared for publication and will supplement the production estimates previously published.
4. Estimates of bearing acreage, by States, for each of 14 noncitrus fruits for the years 1919 to 1946 inclusive were published in January 1949. The estimates give a comprehensive picture of trends in bearing acreage of the various fruit crops for nearly two decades and are useful to both the fruit grower and research worker.
5. The Bureau has reduced the size of the reporting schedule used to gather data on the fluid milk industry to make it less burdensome to the group of voluntary reporters who supply the information needed, and some of the weekly, monthly, and annual reports dealing with manufactured dairy products have been refined in order to make them more attractive and useful. Increased accuracy in the estimating of the monthly production of ice cream is being obtained through the application of a new technique used in the selection and allocation of a sample group of ice cream manufacturers whose combined output is used in estimating monthly production by States. The problem called for the allocation of approximately 1,000 ice cream plants among the 48 States in such a manner as to secure the most accurate national estimate and at the same time to maintain such a degree of accuracy for individual States as to warrant the release of estimates for even the smaller States.
6. "The Farm Accident Situation in 1948," reporting on the accident information obtained in the interview surveys of 1947 and 1948, for the first time provided an over-all picture of the accident hazards and losses suffered by farm people covering all seasons of the year. The surveys indicated among other things, that during 1948 at least one resident out of every six farms was the victim of an accident, involving the loss of one day or more from regular activities, and that \$36,000,000 were spent for medical, dental, and hospital care resulting from accidental injuries to farm people.
7. Nation-wide interview surveys have made it possible to revise estimates of family, hired and total farm employment, monthly by regions, for the years 1944-48 which serve as "bench marks" for the new series on farm labor, wages and wage rates. New and regionalized wage rate information gathered at quarterly intervals made it possible to publish for the first time in January 1949, data on nine different types of wage rates by States.

8. In 1948-49 several preliminary steps were taken to revise the Index of Prices Received and the Index of Prices Paid by Farmers. These revisions have called for consideration of modernized weights, wider commodity coverage, and trial indices. One project of this type is the comparison of the Consumer's Price Index of the BLS with the "family living component" of the Index of Prices Paid. Another project has been the preliminary work on testing the reliability of the general retail price indices through use of analysis of variance of price changes for individual commodities. Similar projects included the determination of quantities of articles purchased by farmers, which are basic to the development of adequate geographic and commodity price weighting factors in index construction.



Comparison of Certain Work-Load Data  
Agricultural Estimates (Including Cooperative Work)  
Fiscal Years 1947, 1948, 1949 and Estimates for 1950 and 1951

	Fiscal Year <u>1947</u>	Fiscal Year <u>1948</u>	Fiscal Year <u>1949</u>	Fiscal Year <u>1950</u>	Fiscal Year <u>1951</u>
Separate questionnaires mailed to farmers and others	10,051	10,566	10,600	10,700	10,800
Copies of questionnaire schedules distributed	8,323,917	8,151,000	8,200,000	8,300,000	8,350,000
Schedules tabulated	1,875,643	1,914,000	1,950,000	2,000,000	2,075,000
Questions per schedule (average)	23	22	22	22	22
Reports prepared	5,272	5,500	5,500	5,550	5,650
Copies of reports distributed	7,313,662	7,951,000	8,000,000	8,100,000	8,200,000
Printed releases distributed (Situation reports, etc.)	2,460,340	2,395,000	2,400,000	2,400,000	2,500,000
Special inquiries answered by mail	25,780	27,900	28,000	28,000	28,200
Special inquiries answered by telephone	30,518	33,600	33,800	34,000	35,000
Personal interviews (exclusive of enumerations)	13,501	14,400	14,000	14,000	14,400
Special county estimates prepared	183,658	145,700	145,000	160,000	160,000
Miles of travel within State, by State office staffs engaged in crop and livestock estimating	804,074	808,000	810,000	830,000	860,000

BUREAU OF AGRICULTURAL ECONOMICS

Functional Summary of RMA Projects Carried Out Under Title II

Functional Classification	1949	1950 (estimated)	Adjustments for 1951		1951 (estimated)
			P. L. 429	Contract	
MARKETING RESEARCH AND SERVICES					
I. Basic data and information:					
a. Reports on supplies, prices and movement of farm products:	245,670:	227,600:	+1,100:	- -	228,700
b. Improving market news and other market information services	31,787:	32,700:	+200:	- -	29,900
Total, Financial Project I	277,457:	260,300:	+1,300:	- -	258,600
II. Expansion of outlets for farm products:					
a. Development of foreign outlets	- -	10,200:	+100:	- -	10,300
c. Determining consumer preference	163,000:	183,700:	+1,700:	- -	185,400
f. Analyses of supply, demand and consumption	82,874:	90,900:	+700:	- -	91,600
Total, Financial Project II	245,874:	284,800:	+2,500:	- -	287,300
III. Marketing services, costs and margins:					
a. Analyses of marketing services	47,447:	76,600:	+1,300:	-9,000:+29,000(b)	97,900
c. Measurement of costs and margins	247,522:	430,600:	+4,100:	-60,000:+20,000(c)	394,700
Total, Financial Project III	294,969:	507,200:	+5,400:	-69,000:+49,000	492,600

(Continued on next page)

Functional Classification	1949	1950 (estimated)	Adjustments for 1951			1951 (estimated)
			P. L. 429	Contract	Other	
MARKETING RESEARCH AND SERVICE-Cont.						
IV. Improvement in preparation and handling of farm products:						
a. Development and improvement of grades and standards ...	9,477	11,200	+100	- -	- -	11,300
d. Economic studies of new and improved processing methods	3,200	12,250	+350	- -	+10,000(d)	22,600
e. Improved storage and conditioning of farm products ..	- -	37,150	-50	-8,000	-5,000(e)	24,100
f. Quality preservation in marketing channels .....	353	5,100	+100	- -	- -	5,200
Total, Financial Project IV	13,030	65,700	+500	-8,000	+5,000	63,200
V. Evaluation and improvement of marketing system:						
b. Increasing efficiency of merchandizing agricultural products .....	- -	55,100	+200	+65,000	+5,000(f)	125,300
c. Evaluation of market organization .....	13,858	136,900	+200	-88,000	-2,500(g)	46,600
Total, Financial Project V	13,858	192,000	+400	-23,000	+2,500	171,900
Over-all administration, etc. ...	8,944	10,300	- -	- -	- -	10,300
Total, Title II RMA .....	854,132	1,320,300	+10,100	-100,000	+53,500	1,283,900

(a) An adjustment of \$3,000 under project 32 "Improving market news and other market information service" to provide funds for projects of more immediate urgency.

(b) An adjustment within available funds to provide an additional \$29,000 to provide for expanding research on analysis of marketing services.



Objective and Plan of Work: To determine the extent to which differences and similarities exist in the transportation charges by competitive carriers, as a partial basis for determining factors that create diversion of traffic; and to supplement present estimates of transportation costs, by gathering additional information on charges between terminal and retail markets.

Field studies will be made on a sample basis among shippers of selected commodities at selected localities to determine transportation costs. A standardized pattern of cost elements will be developed for the purpose of obtaining comparable data for various localities to facilitate comparison as well as to provide for national totals.

(c) An adjustment within available funds to provide an additional \$20,000 for work on measurement of costs and margins.

Objective and Plan of Work: The objective is to measure costs and margins in marketing farm products and analyze the factors affecting them in order to provide the basis for suggesting ways and means of increasing efficiency in marketing and reducing the price spread between the producer and consumer. The Bureau will establish cooperation with other agencies and with distributors and members of other public and private groups to obtain additional data which will be analyzed to determine various elements of costs and possible ways of reducing such costs.

(d) An adjustment within available funds to provide an additional \$10,000 required to expand the work on economic studies of new and improved processing methods.

Objective and Plan of Work: The purpose of the work is to survey and measure the more significant past and current technological developments in agricultural marketing and the economic effects growing out of technological advances.

Work is now being done in cooperation with Land Grant Colleges and other branches of the Department of Agriculture in bringing together and summarizing available information on technological developments and it is planned to analyze this information and to hold conferences in various States to fit the over-all approach to the problem to conditions peculiar to the particular States and areas.

It is planned to study and report on the effect of new methods such as quick freezing, self-service retailing, adoption of labor-saving devices, the growth of truck transportation, and other changes.

(e) An adjustment of \$5,000 on project for improved storage and conditioning of farm products, due to conclusion of survey work on frozen food locker plants and less contract work on low cost milk marketing.

(f) An adjustment within available funds to provide an additional \$5,000 for work on increasing efficiency of merchandizing Agricultural products.

Objective and Plan of Work: The purpose is to discover factors such as processing, packaging, pricing and other merchandizing practices which affect the movement of fruits, fruit products, and tree nuts into domestic distributive channels as well as for export and to determine the factors affecting consumption of these products. Certain phases of the work are now being undertaken under contract and the increase will make it possible to expand the analytical work.

(g) An adjustment of \$2,500 on project evaluation of market organization by reason of completing work on hedging in grain futures by manufacturers of mixed feeds (\$2,000) and minor adjustment of activities on general economics of marketing (\$500).

STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS, WORKING FUNDS, AND TRUST FUNDS  
(Amounts Shown Include Pay Adjustment Costs)

Item	Obligations, 1949	Estimated obligations, 1950	Estimated obligations, 1951
<u>Administrative Expenses, Section 392,</u>			
<u>Agricultural Adjustment Act of 1938,</u>			
<u>Department of Agriculture, (Bureau of</u>			
<u>Agricultural Economics):</u>			
For statistical services in connec-			
tion with wheat acreage allotments			
and marketing quotas .....	\$25,810:	\$41,500:	- -
<u>Flood Control, Department of Agricul-</u>			
<u>ture, (Bureau of Agricultural Eco-</u>			
<u>nomics):</u>			
Research on economic aspects of			
flood control .....	3,749:	30,000:	\$30,000
For assistance in the preparation of			
an agricultural plan for the			
Columbia Basin area .....	- -	- -	22,000
<u>Research and Marketing Act of 1946,</u>			
<u>Department of Agriculture, (Bureau of</u>			
<u>Agricultural Economics):</u>			
(Title I, Sec. 10a): Utilization			
research .....	79,648:	120,000:	130,900
(Title I, Sec. 10b): Research other			
than utilization research .....	346,222:	464,500:	469,000
(Title II): Marketing research and			
service .....	854,132:	1,320,300:	1,283,900
Total, Research and Marketing			
Act .....	1,280,002:	1,904,800:	1,883,800
<u>Special Research Fund, Department of</u>			
<u>Agriculture (Bureau of Agricultural</u>			
<u>Economics):</u>			
For special researches on economic			
factors affecting the farm			
industry .....	52,727:	54,700:	55,000
<u>Working Funds, Agriculture, Bureau of</u>			
<u>Agricultural Economics, (General</u>			
<u>Account):</u>			
<u>Advanced from:</u>			
<u>Department of Agriculture:</u>			
Conducting a statistical survey			
of factors affecting the control			
of Bang's disease in cattle			
(Bureau of Animal Industry) .....	12,071:	- -	- -

(Continued on next page)



Item	Obligations, 1949	Estimated obligations, 1950	Estimated obligations, 1951
<u>Working Funds, Agriculture,</u>			
<u>Bureau of Agricultural Economics,</u>			
<u>(General Account):</u>			
<u>Advanced from:</u>			
<u>Department of Agriculture:</u>			
Continued:			
Participating in a wheat variety			
survey in wheat-producing			
States (Bureau of Plant			
Industry, Soils and Agricultural			
Engineering) .....	- -	2,500:	- -
Furnishing cost-of-production			
data for various crops insured			
by the Federal Crop Insurance			
Corporation (Federal Crop In-			
surance Corporation) .....	5,000:	51,300:	- -
Analysis of the principles and			
methods for economic evalua-			
tions of proposed flood control			
programs (Forest Service)			
(Soil Conservation Service) ....	9,338:	994:	- -
Conducting a survey to ascertain			
the results obtained through a			
pilot food conservation cam-			
paign in Lancaster and York			
Counties, Pa. ....	9,821:	- -	- -
Gathering statistics of stocks			
of dry field peas in farm and			
producing area warehouses (Pro-			
duction and Marketing Adminis-			
tration) .....	- -	22,700:	- -
Total, Department of			
Agriculture .....	36,230:	77,494:	- -
<u>Bureau of the Census:</u>			
Planning and developing new			
methods of procuring agricul-			
tural data .....	12,671:	9,856:	- -
Checking and correcting the			
information for lists of large			
farms furnished by the Bureau			
of the Census .....	- -	15,400:	- -

(Continued on next page)

Item	Obligations, 1949	Estimated obligations, 1950	Estimated obligations, 1951
<u>Working Funds, Agriculture,</u>			
<u>Bureau of Agricultural Economics,</u>			
<u>(General Account):</u>			
<u>Advanced from:</u>			
<u>Bureau of the Census:</u>			
Continued:			
Collecting basic data on prices received by farmers for specified crops and livestock products, and inventory values of specified livestock for use in connection with the 1950 Census:	2,825:	83,075:	--
Total, Bureau of the Census ..	15,496:	108,331:	
<u>Bureau of Labor Statistics:</u>			
Preparing the agricultural segment of the Inter-Industry Study .....	--	5,000:	--
Total, General Working Fund..	51,726:	190,825:	--
<u>Working Fund, Agriculture, General,</u>			
<u>Bureau of Agricultural Economics:</u>			
Administrative expenses incident to the training of three German nationals in the general field of agricultural economics .....	--	300:	--
<u>Working Fund, Agriculture, Bureau of</u>			
<u>Agricultural Economics, Advanced</u>			
<u>from Production and Marketing</u>			
<u>Administration (Trust Account):</u>			
Survey of stocks of beans and peas:	1,776:	72:	--
<u>Miscellaneous Contributed Funds,</u>			
<u>Department of Agriculture, (Bureau</u>			
<u>of Agricultural Economics):</u>			
<u>Deposited by:</u>			
<u>National Bureau of Economic</u>			
<u>Research</u>			
Cooperative study of agricultural financing.....	1,325:	1,421:	--
<u>University of Michigan:</u>			
Cooperative work with the University of Michigan, to develop improved methods of gathering statistical information .....	497:	43:	--

(Continued on next page)

Item	Obligations, 1949	Estimated obligations, 1950	Estimated obligations, 1951
University of Virginia:			
Cooperative work with the Uni-			
versity of Virginia on factors:			
associated with cotton yield			
variability .....	2,500:	375:	- -
Miscellaneous Contributed Funds,			
Department of Agriculture,			
(Bureau of Agricultural Economics):			
Continued:			
Deposited by: (Cont.)			
Iowa State College:			
Cooperative work on research			
and statistical methodology	- -	941:	- -
Total, Miscellaneous Contri-			
buted Funds .....	4,322:	2,780:	- -
International Information and			
Educational Activities (Transfer			
to Agriculture from State Depart-			
ment):			
Participation in the program of			
cooperation with the American			
Republics .....	52,367:	45,283:	a/ - -
Foreign Assistance, Executive Office:			
of the President, Bureau of Agri-			
cultural Economics:			
For carrying out the provisions of:			
Section 112 of the Foreign Assis-			
tance Act of 1948 .....	3,058:	- -	- -
TOTAL, OBLIGATIONS UNDER ALLOTMENTS,			
WORKING FUNDS AND TRUST FUNDS ....	1,475,537:	2,270,260:	1,990,800

a/ Allotment under this transfer has not been determined for the fiscal year 1951.



PASSENGER MOTOR VEHICLES

It is anticipated that the Bureau will need to replace 8 cars in fiscal year 1951 at a net cost of \$1,000 each, or a total of \$8,000.

The 8 cars to be replaced constitute 18% of the total number of cars owned and operated under the above appropriations. Based on attained mileage and anticipated use in 1950, the mileage on each car will exceed 60,000 miles at the time of replacement.



OFFICE OF FOREIGN AGRICULTURAL RELATIONS

Purpose Statement

The Office of Foreign Agricultural Relations collects, interprets, and disseminates economic data and other information on foreign production and consumption of farm products. Through systematic, regular and special reports from agricultural attaches abroad (State Department employees) and from specialists on temporary assignment in other countries, and also by exchange of information with foreign governments and international agricultural organizations, the Office obtains current facts that are used to advise American farmers and business firms handling farm products of important developments abroad that affect their interests. The information also aids Congress, other agencies of government, and U. S. representatives at international conferences to determine questions of policy.

In addition to these activities, the Office administers a program of technical collaboration with foreign governments whereby scientific and technical services are extended to cooperating countries to aid in management of agricultural stations, public service in agriculture, and research projects, for which the Department of State allocates funds under the U. S. Information and Educational Exchange Act of 1948.

The headquarters staff is located in Washington, D. C., with technical collaborators assigned to eight cooperative stations and four agricultural missions in Latin America. On November 30, 1949, employment totaled 293 employees of whom 55 were in the field.

	Estimated, 1950	Budget estimate, 1951
Appropriated funds	\$587,900	\$623,400





Salaries and Expenses

Appropriation Act, 1950 .....	\$576,400
Anticipated pay adjustment supplemental, 1950 .....	11,500
Base for 1951 .....	587,900
Budget Estimate, 1951 .....	623,400
Increase .....	<u><u>+35,500</u></u>

SUMMARY OF INCREASES, 1951

To provide for increased service work growing out of membership in and liaison with international organizations .....	+20,660
For within-grade salary advancements .....	+9,800
To place on a full-year basis in 1951 pay adjustments under P. L. 429 which were in effect for only a part of fiscal year 1950 .....	+5,040

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950	Increase	Other	1951
		(estimated)	P. L. 429 adjustment		(estimated)
1. Foreign agricultural production and consumption and its effect on United States agriculture .....	\$248,100	\$247,030	+\$2,394	+\$4,400(1)	\$253,824
2. Foreign financial and trade policies and practices affecting United States agricultural trade .....	182,165	177,150	+1,710	+3,000(1)	181,860
3. Representation in international agricultural activities .....	120,563	112,685	+ 443	+22,395(2)	135,523
4. Contacts with United States officials abroad .....	- -	51,035	+ 493	+665(1)	52,193
Total pay adjustment costs, Public Law 429	<u>77</u>	<u>11,500</u>	<u>+5,040</u>	<u>+7660</u>	<u>17,200</u>
Unobligated balance	1,838	- -	- -	- -	- -
Total available	552,666	587,900	+5,040(3)	+30,460	623,400
Transfer in 1950 estimates from "Printing and binding, Department of Agriculture" .....	-12,666	- -	- -	- -	- -
Anticipated pay adjustment supplemental	- -	-11,500	- -	- -	- -
Total Appropriation or estimate	540,000	576,400	- -	- -	- -

INCREASE

The increase of \$35,500 in this item for 1951 is composed of the following:

(1) Increase of \$8,065 under projects 1, 2, and 4 for cost of within-grade promotions.

The Mead-Pamspeck Act, as amended by the Classification Act of 1949, provides that employees compensated on a per annum basis and occupying permanent positions, and who have not attained the maximum rate of compensation for the grade in which their positions were allocated should receive an advance in compensation to the next higher rate within the grade after each 52 weeks of service for employees in grades below GS-11, and after each 78 weeks of service for employees in GS-11 and above.

The increases of \$8,065 under Projects 1, 2, and 4 and \$1,735 under Project 3 are to cover, in part, the additional cost of these within-grade salary advancements in the fiscal year 1951. These increases were determined only after careful consideration of the cost of within-grade salary advancements that can be absorbed through (1) savings due to delay in filling vacancies and (2) savings due to filling vacancies at the minimum of the grade as a result of separations and promotions. It is estimated that it will be more difficult to absorb within-grade salary advancement costs in 1951 than in previous years due to very small savings estimated to accrue from turnover. Further absorption of this cost would necessitate curtailment of essential services being performed by the Office.

(2) Increase of \$22,395 under the project, "Representation in international agricultural activities" composed of:

(a) An increase of \$20,660 to provide for increased service work growing out of membership in and liaison with international organizations.

Need for Increase: With increased United States participation in international affairs, this Office needs additional facilities for work with other agencies operating in related fields. In furtherance of agricultural objectives, it is essential that policies and activities of the Food and Agricultural Organization, the Interim Commission of the International Trade Organization, the International Cotton Advisory Committee, the International Wheat Council, and similar groups and bodies, be studied and reported upon to the farm population and organizations of the United States. Other functions that need to be strengthened include work in arranging for appropriate agricultural representation at international conferences and preparing documentation of the Department's position on numerous international policies and programs affecting agriculture.

The Office of Foreign Agricultural Relations has a representative serving as secretary to the U. S. FAO Interagency Committee, which coordinates relations between Federal agencies and the FAO. The



duties entail numerous matters of business detail and involve the broader aspects of public education concerning FAO activities and objectives.

Typical administrative tasks include:

- a. Arranging meetings of the Interagency Committee, which was established by the Secretary of Agriculture at the direction of the President to formulate United States policy regarding the work of FAO. The Office works closely with the Committee and various subcommittees to see that the interests of United States agriculture are adequately represented in FAO policy.
- b. Arranging for U. S. delegations to attend international meetings sponsored by FAO, to represent American agricultural interests abroad and to reflect farm group needs and requirements in the international field.
- c. Preparing instructions for delegations covering subjects which may come up, consulting in advance with other key foreign governments on items of vital interest to the United States.
- d. Preparing reports on FAO conferences for dissemination to the Interagency Committee, other public officials, and interested farm and other public groups.
- e. Collecting statistics to be supplied to FAO. On the basis of these statistics from Member Governments, FAO prepares world statistical handbooks on agriculture, forestry and fisheries which are of growing value to the U. S. Government, its farmers and those who trade in agricultural, forestry and fishery products. Similarly, information is supplied FAO on the development of United States agricultural policy and legislation.
- f. Interpreting and disseminating public information furnished to the Government by FAO on foreign agricultural policy, trade and scientific developments.

In view of the constantly heavier volume of this work it is increasingly clear that effective operation requires the fixing of responsibility and employment of sufficient staff in a unit which can render the services needed.

Plan of Work: It is proposed to recruit for the work involved three full-time specialists qualified by background and experience to represent the Office in the day-to-day relations maintained with international organizations, to help plan representation at conferences, and to deal with voluminous correspondence and numerous visitors.

(b) An increase of \$1,735 to meet the increased costs of within-grade salary advancements in fiscal year 1951 (Discussed in detail above)

(3) Increase of \$5,040 to place on a full-year basis in 1951 pay adjustments under P. L. 429 which were in effect for only a part of the fiscal year 1950.

CHANGE IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

Salaries and expenses: For necessary expenses for the Office of Foreign Agricultural Relations and for enabling the Secretary to coordinate and integrate activities of the Department in connection with foreign agricultural work, including personal services in the District of Columbia, /and not to exceed \$500 for newspapers, \$576,400/ \$623,400.

The change in language is proposed to delete the limitation on purchases of newspapers. Public Law 600, approved August 2, 1946, repealed the former statutory requirements that specific authorization for the purchase of newspaper, books of reference, and periodicals be carried in either substantive legislation or the appropriation act. Therefore, retention of the subject limitation is no longer necessary, and its deletion is proposed to simplify the accounting and auditing work incident thereto.

## STATUS OF PROGRAM

Current Activities: Recent and emerging changes in world agricultural economic situations have caused the Office to intensify its efforts to investigate and report upon foreign agricultural developments of interest and significance to United States agriculture. Currency devaluation, for example, introduced important shifts of emphasis, particularly with respect to trends and potentialities concerning foreign competition with and foreign demand for American farm products. Periodic and special series of reports are made to American farmers, growers, farm and commodity organizations, the Congress, and other governmental and intergovernmental organizations on the facts relating to (1) foreign production and international trade in agricultural products, and trade agreements applicable thereto; (2) the world food situation; (3) specialized information concerning the agriculture, trade and finance of other countries, and (4) the results of technical advice and assistance requested by foreign governments.

### Examples of Recent Work.

1. Reports were prepared in response to Congressional requests for information on subsidies and quotas, tariff changes, and international agreements of concern to agriculture. Comprehensive regular reports on crop conditions in Europe are being issued to assist the Congress, Economic Cooperation Administration and other Government agencies in determining policies in guiding United States activities in that area. Advice and assistance to agencies concerned with the President's Point IV Program have been rendered on foreign agricultural subjects.

2. Data were prepared on foreign agricultural production, agricultural products in foreign trade, prices of agricultural commodities for the world as a whole and other salient facts relating to food distribution and availabilities. The principal commodities covered were cotton, tobacco, wheat, lard, apples and soy beans.

3. Staff members participated in various international conferences and discussions. These deliberations frequently require that extensive data be prepared for group consideration and for the guidance of this country's representatives. A few examples indicate the type and extent of this activity:

(a) Liaison services between the Food and Agriculture Organization of the United Nations and the Department of Agriculture have required at least eight man-years to maintain this representation, involving the preparation of position papers, clearance of recommendations, and consideration of policies.

(b) The Office was represented in the United States Delegation to the Eighth Plenary Meeting of the International Cotton Advisory Committee at Brussels in April, 1949. Thirty governments participated. The Committee initiated a study designed to bring about an increased consumption of cotton in the world as a whole.



(c) Representatives were detailed to the International Trade Conference at Annecy, France for three months, to work out general agreements on tariffs and trade.

(d) Representation was also furnished at the Foreign Service Economic Conference at Rio de Janeiro, New Delhi, and Tangier, and at other international meetings involving agricultural interests.

(e) A staff member was loaned for about three months to the Office of the Special Representative of the Economic Cooperation Administration in Paris as an observer in the Textile Committee of the Organization for European Economic Cooperation. He assisted in making an appraisal of the textile program of ECA countries and participated in most of the policy discussions.

(f) Three members of the staff took a leading part in the negotiations with Canada on an agreement for potatoes. The agreement which became effective December 1, 1949 was to control and coordinate the exports of potatoes from Canada to the United States as an aid to the United States potato price support program.

(g) Members of the staff took part in formulating and working out negotiations prior to the Congressional ratification of the International Wheat Agreement.

(h) The Office prepared an appraisal of the agricultural program of ERP countries for 1949 through 1953 and contributed to a report on the likely repercussions of ECA on American agriculture.

(i) A report was prepared on the agricultural economy of the Far East as background material for missions to the Philippines, Siam, Ceylon, India, Pakistan, Iran and Liberia.

(j) A delegate was supplied to the Army Mission to the Ryukyu Islands to examine an agricultural development program for these islands.

(k) Background material was prepared for a Departmental delegate attending meetings on Trade Agreements participated in by the Departments of State and Commerce and the Tariff Commission.

(l) The report on the World Food Survey, published in January, 1949, provided information on the world food situation for use by policy-forming bodies of the Government, including Congress, and by the public.

(m) Studies were initiated on world production of dried beans and peas, of which the United States has a surplus, to discover possible foreign markets and to evaluate competition.

(n) Comprehensive studies were made of wheat, flaxseed, peanuts and hops in world production and trade showing present patterns of sources in comparison with prewar and the present pattern of world trade in these commodities.

4. Periodicals published throughout the year included:

- (a) Foreign Agriculture (monthly)
- (b) Foreign Crops and Markets (weekly)
- (c) Foreign Agriculture Circular (current releases)
- (d) Foreign Agricultural Trade (monthly summary)

5. Annual publications also are issued accounting for U.S. foreign trade in agricultural products, both on a calendar year and a fiscal year basis, with commodity and country breakdowns.





# OFFICE OF FOREIGN AGRICULTURAL RELATIONS

## Functional Summary of FMA Projects Carried Out Under Title II

Functional Classification	1949	1950 (estimated)	Adjustments: for 1951, P. L. 429	1951 (estimated)
MARKETING RESEARCH AND SERVICES				
II. Expansion of outlets for farm products:				
a. Development of foreign outlets .....	\$146,977	\$192,700	+\$1,000	\$193,700



STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS AND WORKING FUNDS  
(Amounts shown include pay adjustment costs)

Item	Obligations, 1949	Estimated obligations, 1950	Estimated obligations, 1951
<u>Removal of Surplus Agricultural</u>			
<u>Commodities, Department of Agri-</u>			
<u>culture (Office of Foreign Agri-</u>			
<u>cultural Relations):</u>			
For obtaining information on			
foreign market developments and			
other data related to the inter-			
national aspects of the work			
under Section 32 of the Act of			
August 24, 1935 .....	\$21,324:	\$51,100:	\$51,500
<u>Research and Marketing Act of 1946,</u>			
<u>Department of Agriculture (Office</u>			
<u>of Foreign Agricultural Relations):</u>			
For developing foreign outlets			
for United States agricultural			
products in plentiful supply ....	146,977:	177,300:	153,000
For appraising world demand for			
United States agricultural			
products .....	- -:	15,400:	40,700
Total .....	146,977:	192,700:	193,700
<u>Working Funds, Agriculture, General</u>			
<u>(Office of Foreign Agricultural</u>			
<u>Relations) - Advanced from:</u>			
<u>Department of State:</u>			
For training of Koreans in Ameri-			
can practices and techniques in			
agriculture and related fields..	35,020:	56 - -:	- -
<u>National Military Establishment,</u>			
<u>Department of the Army:</u>			
For training of German nationals:			
in the general field of agri-			
culture .....	45,500:	3,000:	- -
Total, Working Funds .....	80,520:	3,000:	- -

(Continued on next page)



Item	Obligations, 1949	Estimated obligations, 1950	Estimated obligations, 1951
Economic Cooperation Administration,			
Executive Office of the President			
(Transfer to Agriculture) (Office			
of Foreign Agricultural Relations):			
For preparing statistical infor-			
mation on agricultural conditions:			
and food balances in countries			
participating in the European			
Recovery Program .....	139,667:	89,983:	- -
Assistance to Greece and Turkey,			
Executive Office of the President			
(Transfer to Agriculture) (Office			
of Foreign Agricultural Relations):			
To provide for certain program			
expenses in support of the agri-			
cultural rehabilitation program			
of the American Mission for Aid			
to Greece .....	15:	<sup>#</sup> 720 Balance - -	- -
International Information and Educa-			
tional Activities (Transfer to Agri-			
culture) (Office of Foreign Agri-			
cultural Relations):			
For promoting in Latin America,			
through the establishment of			
cooperative agricultural research:			
and extension centers, the pro-			
duction of complementary or non-			
competitive agricultural products:	682,404:	774,472:	- -
For training in agricultural re-			
search of trainees from other			
American Republics .....	103,560:	31,187:	- -
For collaborating with countries			
of the Eastern Hemisphere in the			
rehabilitation and development			
of their agricultural resources			
through agricultural missions			
which will assist in negotiating			
Memorandums of Understanding and			
furnish technical advice .....	- -:	91,742:	- -
For training in agricultural			
research of trainees from			
Eastern Hemisphere countries .....	- -:	22,000:	- -
Total .....	785,964:	919,401:	a/
TOTAL, OBLIGATIONS UNDER ALLOTMENTS			
AND WORKING FUNDS .....	1,174,467:	1,256,184:	245,200

a/ Allotments under this transfer have not been determined for the fiscal year 1951.

EXTENSION SERVICE

Purpose Statement

*Inserted*  
76  
also 72 & 73 of  
Com. Print

The Smith-Lever Act of May 8, 1914 inaugurated the present nationwide system of cooperative Federal-State extension work in agriculture and home economics. Its function is to take the research results, farm situation, and program facts of the Department of Agriculture and the State Agricultural Colleges and Experiment Stations to farm people in terms of local, ready-for-use application. The activities of the entire cooperative extension organization are directed toward:

1. The improvement of farm income through the application of science and farm mechanization.
2. The improvement of the health through better nutrition and more adequate health facilities and services.
3. The improvement of family living through better housing, rural electrification, and more adequate labor saving equipment.
4. The improvement of educational and recreational facilities for the home and the community.
5. The development of a better understanding of, and more effective participation in community, State, national, and international affairs to the end that constructive policies may be determined.
6. Conservation of resources for the benefit of the nation and future generations.

Funds for payments to States are distributed to each State, Alaska, Puerto Rico and Hawaii, partly on the basis of prescribed amounts and partly on the basis of the rural population, the farm population, and, within limitations, as the Secretary may determine. The cooperative extension service derives its finances from Federal, State, county and local sources. These funds are used within the States for the employment of county agents, home demonstration agents, 4-H Club agents, State specialists and others who conduct among rural people the joint educational programs adopted for local application.

The Federal Extension Service maintains its central office in Washington and carries on its functions through the State extension services in cooperation with the 51 State and Territorial Land-Grant colleges, and a network of county extension offices in nearly 3,000 counties.

On November 30, 1949, there were approximately 11,618 State and county extension workers attached to the State organizations, and 258 Federal employees, 202 of whom were in Washington.

1. General statement
2. Discussion of territories
3. Having act language read into record
4. Do you have County agents to Soil Cons. Service?
5. Retirement benefits - Howan?

	Estimated 1950	Budget estimate 1951
Appropriated funds:		
Payments to States, Hawaii, Alaska and Puerto Rico.....	\$31,793,660	\$32,561,248
Administration of the Federal Extension Service.....	930,400	958,200
Total appropriated funds.....	32,724,060	33,519,448

Summary of Appropriations, 1950 and Estimates, 1951

(Amounts Shown Include Estimated Pay Adjustment Supplementals)

Item	Total : estimated available: 1950 a/	Budget : estimates, 1951	(Increase (+) or decrease (-)
Payments to States:			
Capper-Ketchum Act.....	\$1,480,000	\$1,480,000	- -
Bankhead-Jones Act, Title II			
Section 21.....	12,000,000	12,000,000	
Section 23.....	12,500,000	12,500,000	
Additional extension work .....	555,000	555,000	
Alaska.....	23,950	56,100	+\$32,150
Puerto Rico.....	408,000	540,438	+132,438
Housing Act of 1949, Title V			
Section 506a.....	122,000	725,000	+603,000
Cooperative agricultural extension work (permanent).....	4,704,710	4,704,710	- -
Total, Payments to States.....	31,793,660	32,561,248	+767,588
Salaries and expenses:			
Administration and coordination of extension work.....	930,400	958,200	+ 27,800
Total.....	32,724,060	33,519,448	+795,388
Deduct permanent appropriation			
Cooperative agricultural extension work.....	-4,704,710	-4,704,710	- -
Total, direct annual appropriations.....	28,019,350	28,814,738	+795,388

a/ Adjusted for comparability with the appropriation structure proposed in the 1951 Budget Estimates.



(a) Payments to States, Hawaii, Alaska, and Puerto Rico  
for Cooperative Agricultural Extension Work

Appropriation Act, 1950.....	\$26,966,950
Activities transferred in the 1951 Estimates from "Salaries and Expenses, Farm Housing, Department of Agriculture", for providing technical advice and assistance in farm housing.....	122,000
Base for 1951.....	27,088,950
Budget Estimate, 1951.....	27,856,538
Increase.....	<u>767,588</u>

SUMMARY OF INCREASES AND DECREASES, 1951

To extend to the Territory of Alaska the benefits of the Capper- Ketchum Act and Section 21 and 23 of the Bankhead-Jones Act..	+32,150
To extend benefits of the Capper-Ketchum Act to Puerto Rico to provide for the further development of extension work in agriculture and home economics.....	+31,348
For extension of Section 23 of the Bankhead-Jones Act to Puerto Rico.....	+101,090
To furnish technical advice and assistance in farm housing and other farm buildings.....	+503,000

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950 :(estimated):	Increase or decrease	1951 :(estimated)
1. Capper-Ketchum Act (Act of May 22, 1928).....	\$1,480,000	\$1,480,000	- -	\$1,480,000
2. Bankhead-Jones Act, section 21, title II (Act of June 29, 1935).....	12,000,000	12,000,000	- -	12,000,000
3. Bankhead-Jones Act, section 23, title II of the act approved June 29, 1935, as amended by the act of June 6, 1945 (Public Law 76).....	11,270,000	12,250,000	- -	12,250,000
Administrative expenses, Federal Extension Service.....	230,000	250,000	- -	250,000
4. Additional Extension Work (act of April 24, 1939).....	555,000	555,000	- -	555,000

(Continued on next page)

Project	1949	1950 (estimated)	Increase or decrease	1951 (estimated)
5. Alaska:				
(Act of February 23, 1929).....	\$13,950:	\$13,950:	- -	\$13,950
(Act of October 27, : 1949) a/.....	10,000:	10,000:	(1) +32,150:	42,150
6. Puerto Rico:				
(Act of August 28, : 1937).....	408,000:	408,000:	- -	408,000
(Section 3, Act of : March 4, 1931 : Extension of : Capper-Ketcham : Act to Puerto : Rico).....	- -	- -	(2) +31,348:	31,348
(Act of October 26, : 1949, P.L. 406)...	- -	- -	(2)+101,090:	101,090
7. Housing Act of 1949, : Title V (P.L. 171) : section 506a.....	- -	122,000:	(3)+603,000:	725,000
Total pay adjustment : costs, :				
Public Law 429.....	1- - 7	15,1697	1- - 7	17,6817
Total available.....	25,966,950:	27,088,950:	767,588:	27,856,538
Transfer in 1951 : estimates from :				
"Salaries and Expenses, : Farm Housing, : Department of : Agriculture".....	- -	-122,000:	+ :	
Total estimate or : appropriation.....	25,966,950:	26,966,950:		

a/ Funds for fiscal years 1949 and 1950 appropriated under the Act of June 20, 1936, provisions of which extending partial benefits of the Capper-Ketcham Act to Alaska were substituted for by the Act of October 27, 1949.

#### INCREASES

The net increase of \$767,588 in this item for 1951 is composed of the following:

- (1) An increase of \$32,150 under the project "Alaska" to extend to the Territory of Alaska the benefits of the Capper-Ketcham Act and Section 21 and 23 of the Bankhead-Jones Act:

Objective: To extend to the expanding farm population technical advice and assistance in agriculture and home economics.

Authorization: Alaska is entitled to receive the full benefits of the Capper-Ketcham Act, and Section 21 and 23 of the Bankhead-Jones Act pursuant to Public Law 417, 81st Congress, approved October 27, 1949. This Act extends to the Territory of Alaska the full benefits of section 21 and 23 of Title II of the Bankhead Jones Act and the Capper-Ketcham Act, and places the authorization for Alaska on the same basis as that for the States. Section 3 and that portion of Section 1 of the Act of June 20, 1936 which extends partial benefits of the Capper-Ketcham Act to the Territory of Alaska were repealed. The purpose of the Act of October 27, 1949 is to extend to Alaska the full benefits of the legislation authorizing Federal appropriations for agricultural extension work, instead of the partial benefits which the Territory has been receiving.

Problem: The present staff of extension workers is inadequate to reach all the farm families in need of help and to carry on an effective educational program. The long distances and inadequate transportation facilities make it both costly and time-consuming to reach the scattered communities and cultivated valleys. Most of the agricultural development is located in the Matanuska Valley but many new families have recently taken up homesteads in the vicinity of Anchorage. In addition to farm families in need of help, there are thousands of part-time farm and rural nonfarm families including fisherfolk and villagers who could greatly benefit from extension educational work along the lines of production of home food supply, nutrition, family health practices, community health facilities, recreation, and other community life. "How to live in Alaska" should be a major project with agricultural extension, home demonstration and 4-H Club work integrated.

Significance: Practically all phases of agriculture could be developed in Alaska if necessary technical advice and assistance were available. It is estimated that Alaska produces food for only 15 percent of its nutritional requirements. Properly diversified agriculture can provide most of the family needs. However, at the present time less than 50 percent of the people on the land are making their entire living from the products of the land. Importation of food is expensive and present production costs are high. Thus a sound economy of production for home use and economic commercial production is basic to the further development of Alaska industrially and militarily, as well as being basic to the alleviation of present low living conditions of many rural and village families.

Plan of Work: Additional funds would make possible the employment of a 4-H Club Leader, a county agricultural agent-at-large to work with homesteaders in various settlements, a home demonstration agent for the Matanuska Valley, a nutrition specialist to render service to the native and white population in all parts of the Territory, as well as necessary clerical assistance, travel expenses, supplies and office rent.



(2) An increase of \$132,438 under the project "Puerto Rico" composed of the following:

(a) An increase of \$31,348 to extend the benefits of the Capper-Ketcham Act to Puerto Rico

(b) An increase of \$101,090 to extend section 23 of the Bankhead-Jones Act to Puerto Rico

Objective: To broaden the scope of extension activities in Puerto Rico to help meet urgent food production, health, nutrition, and other needs.

Authorization: (a) Section 3 of the Act of March 4, 1931 which extends the benefits of certain Acts to Puerto Rico provides that "Participation in other Federal appropriations for cooperative extension work, including those authorized by the Act of May 22, 1928, shall be at such times and in such amounts as shall be estimated by the Secretary of Agriculture and appropriated by the Congress". Under this authority it is estimated that Puerto Rico is entitled to receive \$31,348. The ability to meet matching requirements has been assured. (b) Act of October 26, 1949 (Public Law 406) extends the benefits of section 23, Title II of the Bankhead-Jones Act in the specific amount of \$101,090 for the first fiscal year following enactment and an additional sum of \$100,000 for each succeeding year until an appropriation of \$401,090 annually is reached.

Problem: Lack of sufficient field personnel to cover the difficult territory is a serious problem. Extension agents are carrying an extremely heavy load. There are only 70 agricultural agents and 68 home demonstration agents in the counties to reach the 250,000 rural families living on the Island. There are an increasing number of calls every day for the help of extension workers in the solution of agricultural and home maintenance problems. The difficulties imposed upon extension workers in Puerto Rico due to lack of sufficient personnel can be clearly understood in the light of the following facts:

1. The topography is two-thirds hilly or mountainous. Lack of good roads handicap the work. Much of the work with rural families has to be made either on horseback or on foot.
2. The land on the average is poor and the yields are low. The best lands are in the hands of a small group of large landholders.
3. Rainfall is heavy -- in some places over 150 inches annually and consequently erosion in the hilly country is high.
4. There are over 600 people per square mile.
5. Means of communication in the rural zone are poor or non-existent. There is practically no rural electrification and very limited rural telephone, telegraph or mail service.
6. The educational level is very low. Many people are difficult to approach because they do not know how to read -- they live in the farthest places and have the least and poorest means of communication.
7. Improper nutrition and poor health are allies -- improper nutrition is considered one of the greatest problems in Puerto Rico.

Significance: Puerto Rico is densely populated and there is a great need of conserving the land and having it produce efficiently so as to supply the demand for food of an increasing population. In order to achieve this, additional extension workers will be necessary to help rural families adopt improved methods and practices in the production and marketing of crops and livestock, erosion control, the planting of gardens and the development of other home food sources, food preservation.

4-H Club Work: There are 352,000 boys and girls in Puerto Rico eligible for 4-H Club Work. In addition, there are over 100,000 young people between 21 and 30 years old who need help. Most of these young people leave school before reaching the sixth grade and with practically no training in skills which they could use to earn a living. Youth, void of opportunities for social guidance, pressed by health problems and practically unskilled for work and economic production, become more and more a public liability. They need to be given opportunities and guidance such as 4-H Club work provides to cultivate the little academic training they have acquired at school. Present enrollment in 4-H Clubs is 16,206-- there should be an enrollment of at least 50,000 club members.

Plan of Work: The additional funds requested will make possible the employment of 12 agricultural agents, 12 home demonstration agents, and 2 4-H Club leaders to work with rural men, women and boys and girls to achieve the ultimate objective towards which extension work is directed, that is, better living for all the people.

(3) An increase of \$603,000 to furnish technical advice and assistance in farm housing and other farm buildings as an integral part of the farm housing program:

Objective: To furnish technical services in connection with building plans, specifications, construction supervision and inspection, and advice and information regarding farm dwellings and other buildings.

Problem and Significance: In order to meet the additional demands for technical advice and assistance in farm housing and other buildings arising from the Housing Act of 1949, at least 60 agricultural engineers and 40 extension specialists in home economics will be needed on State and Territorial staffs. The allocation for fiscal year 1950 of \$122,000 for the extension farm housing program does not reflect a measurement of existing needs but rather the inauguration of a modest program on a part year basis which must be strengthened to make it effective.

Plan of Work: The technical service to be provided by the Extension Service for the purposes of this Act would be applied almost entirely to new work and methods of effective use of regular county extension forces. Specialists to be employed at State extension headquarters would apply typical case solutions to specific inadequate housing problems submitted by farm families



and thereby build a sound program to deal with the conditions encountered. Each State dealing with these problems requires a minimum technical staff of one person since the technical aid in architectural work of this kind must be competent and efficient. A number of States require a minimum of two such persons, and the States with the largest number of farms, which also have the most need for building construction demonstration and for instruction in the use of farm labor and local building materials for economic construction, will require 3 technical workers to conduct the extension work newly authorized under this Act. The estimated increase will provide for full-time employment of 60 agricultural engineers and 40 extension home economists necessary to carry on this program, their travel, office assistance, and miscellaneous expenses, which will include technical supplies such as blue prints, specifications, etc. not presently supplied for county extension workers and farm people in the detail, variety, and quantity which is required by this program.



CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

For payments to the States, Hawaii, Alaska, and Puerto Rico, for cooperative agricultural extension work as follows:

- Capper-Ketcham, Bankhead-Jones, and related Acts: Capper-Ketcham Act, the Act approved May 22, 1928 (7 U.S.C. 343a, 343b), \$1,480,000; Bankhead-Jones Act, section 21, title II, of the Act approved June 29, 1935 (7 U.S.C. 343c), \$12,000,000; Bankhead-Jones Act, section 23, title II, of the Act approved June 29, 1935, as amended by the Act of June 6, 1945 (7 U.S.C. 343d-1), \$12,500,000; additional extension work, the Act approved April 24, 1939, as amended (7 U.S.C. 343c-1), \$555,000; Alaska, the Act approved February 23, 1929 (7 U.S.C. 386c); extending the benefits of the
- 1 Smith-Lever Act to the Territory of Alaska, \$13,950, and section 3 of the Act approved June 20, 1936 (7 U.S.C. 343e), extending the benefits of the Capper-Ketcham Act to the Territory of Alaska, \$10,000/ the Act approved October 27, 1949 (Public Law 417), extending to the Territory of Alaska the benefits of the Capper-Ketcham Act and section 21 and 23 of title II of the Bankhead-Jones
  - 2 Act, \$42,150; Puerto Rico, section 3 of the Act of March 4, 1931 (7 U.S.C. 386f), authorizing extension of the Capper-Ketcham Act to Puerto Rico, \$31,348, the Act approved August 28, 1937 (7 U.S.C. 343f-343g), extending the benefits of section 21 of the Bankhead-
  - 3 Jones Act to Puerto Rico, \$408,000; and the Act approved October 26, 1949 (Public Law 406), extending the benefits of section 23 of title II of the Bankhead-Jones Act to Puerto Rico,
  - 4 \$101,090; and section 506a of Title V of the Housing Act of 1949
  - 5 (Public Law 171), \$725,000; in all, /Capper-Ketcham, Bankhead-Jones, and related Acts, \$26,966,950/ Payments to States, Hawaii, Alaska, and Puerto Rico, \$27,856,538.

The first change in language deletes the provisions made for payments to Alaska under the Act of June 20, 1936, and inserts provision for extending the full benefits of the Capper-Ketcham Act, and section 21 and 23 of title II of the Bankhead-Jones Act to Alaska, as provided in Public Law 417, approved October 27, 1949

The second change inserts language appropriating funds for the extension of the Capper-Ketcham Act to Puerto Rico, as provided by section 3 of the Act of March 4, 1931, which reads in part "Participation in other Federal appropriations for cooperative extension work, including those authorized by the Act of May 22, 1928, shall be at such times and in such amounts as shall be estimated by the Secretary of Agriculture and appropriated by the Congress." Under this authority, an increase of \$31,348 for payments to Puerto Rico has been proposed in the estimates.

The third change inserts language appropriating funds for extending the benefits of section 23 of Title II of the Bankhead-Jones Act to Puerto Rico according to the provisions of Public Law 406, approved October 26, 1949.

The fourth change makes provision for including payments to the States and Territories for technical advice and assistance on farm housing and farm buildings, as authorized in section 506a of Title V, of the Housing Act of 1949, approved July 15, 1949.

The fifth change deletes the wording "Capper-Ketcham, Bankhead-Jones, and related Acts" and inserts in lieu thereof "Payments to States, Hawaii, Alaska and Puerto Rico" for the purpose of including in the summary all payments to the States and Territories under the listed Acts.

#### PAYMENTS TO STATES AND TERRITORIES

Funds available for fiscal year 1950 for direct payments to States, Hawaii, Alaska, and Puerto Rico for cooperative agricultural extension work total \$31,421,660. In addition, \$88,180 was allotted from funds appropriated to the Department of Agriculture for Farm and Other Private Forestry Cooperation, - - \$122,000 for the Farm Housing Program and \$528,000 for Research and Marketing Extension Work.

The entire amount for payments to the States and Territories is paid directly to a designated officer in each State and Territory and the funds are disbursed by them in accordance with budgets and programs of work submitted by the State directors of extension and approved by the Secretary of Agriculture. Some offset by States and Territories is required by law before the funds become available, resulting in extension work being financed about 44 percent from Federal sources and about 56 percent from State and local sources. The funds are used by the States in carrying on extension work with rural people. Paid workers are being assisted by a network of voluntary neighborhood leaders who cooperate in carrying out extension programs.

The use of these funds is indicated in greater detail in the following tables. Table 1 indicates the sources of funds allotted for cooperative extension work in the States, Alaska, Hawaii, and Puerto Rico for 1950, including allotments for Farm Housing and Research and Marketing. Table 2 shows estimated direct payments to the States and Territories for 1951 indicating those which require offset by State, county or local funds, those where such offset is not required, and the basis of allotment. Table 3 indicates the various classes of field agents employed with extension funds.



U. S. DEPARTMENT OF AGRICULTURE  
EXTENSION SERVICE  
SOURCES OF FUNDS ALLOTTED FOR COOPERATIVE EXTENSION WORK IN STATES, ALASKA, HAWAII, AND PUERTO RICO  
FOR THE FISCAL YEAR ENDING JUNE 30, 1950

STATES	FUNDS FROM FEDERAL SOURCES												FUNDS FROM WITHIN THE STATES		
	GRAND TOTAL	TOTAL FEDERAL FUNDS	TOTAL WITHIN THE STATES	SMITH-LEVER	BANKHEAD-JONES SECTION 21 TITLE II	HANKHEAD-JONES SECTION 23 TITLE II	CAPPER-KETCHAM	ADDITIONAL COOPERATIVE	CLARKE-MCNARY	NORRIS-DOXEY	FARM HOUSING TITLE V HOUSING ACT OF 1949*	RESEARCH AND MARKETING ACT TITLE II SEC. 204(b)**	STATE AND COLLEGE	COUNTY	FARMERS ORGANIZATIONS ETC.
Alabama	\$ 2,285,306.66	\$ 1,230,150.88	\$ 1,055,155.78	\$ 151,596.66	\$ 502,475.28	\$ 514,435.98	\$ 37,220.03	\$ 3,724.15	\$ -	\$ 1,620.00	\$ 2,000.00	\$ 17,078.78	\$ 563,155.78	\$ 492,000.00	\$ -
Arizona	374,364.07	188,080.07	186,284.00	33,296.96	61,113.21	68,836.68	22,833.22	-	-	-	2,000.00	-	154,944.94	31,339.06	-
Arkansas	1,692,833.80	1,013,614.64	679,219.16	118,683.61	419,860.17	426,348.18	33,217.36	6,949.16	-	1,620.00	2,000.00	4,936.16	471,740.16	207,479.00	-
California	3,149,549.49	712,322.92	2,437,226.57	153,609.36	260,837.46	256,791.30	37,464.80	-	1,620.00	-	2,000.00	-	1,576,729.57	860,497.00	-
Colorado	855,629.96	364,604.96	491,025.00	48,141.19	110,836.10	141,853.37	24,638.47	27,395.83	1,260.00	-	2,000.00	8,480.00	234,743.00	255,757.00	525.00
Connecticut	523,926.24	181,526.13	342,400.11	49,469.04	57,650.95	40,145.07	24,799.96	-	1,620.00	-	2,000.00	5,841.11	252,304.11	76,402.00	13,694.00
Delaware	159,207.50	98,907.50	60,300.00	19,101.13	36,515.26	18,459.29	21,106.82	-	-	-	2,000.00	-	1,725.00	53,200.00	2,500.00
Florida	1,181,862.60	353,985.16	827,877.44	70,994.31	129,651.51	121,915.18	27,417.72	-	1,620.00	-	2,000.00	386.44	464,481.44	363,296.00	-
Georgia	2,163,513.32	1,272,752.53	890,760.79	156,817.49	511,293.31	523,838.15	37,854.95	26,432.70	1,620.00	1,620.00	2,000.00	11,275.93	421,080.93	469,679.86	-
Idaho	656,257.10	278,662.10	377,595.00	34,936.02	92,773.63	119,594.39	23,032.55	3,445.51	1,620.00	1,620.00	2,000.00	-	237,100.00	140,495.00	-
Illinois	2,578,995.84	971,146.42	1,607,849.42	159,515.89	371,653.23	374,947.87	38,183.11	10,736.90	1,620.00	1,620.00	2,000.00	10,869.42	615,849.42	980,000.00	-
Indiana	1,889,536.60	787,942.81	1,101,593.79	120,302.76	313,278.64	312,706.35	33,414.27	-	1,620.00	-	2,000.00	4,620.79	623,496.79	478,097.00	-
Iowa	2,505,004.79	907,425.46	1,597,579.33	114,139.96	354,375.33	356,525.41	32,664.80	28,020.63	1,620.00	1,620.00	2,000.00	16,459.33	723,459.33	345,000.00	529,120.00
Kansas	2,199,024.41	651,721.40	1,547,303.01	84,993.69	238,032.79	232,475.97	29,120.22	50,228.73	-	1,620.00	2,000.00	-	355,058.00	980,225.01	212,020.00
Kentucky	1,824,261.43	1,155,885.47	668,375.96	152,977.52	473,004.01	483,012.44	37,387.96	-	1,620.00	-	2,000.00	5,883.54	369,753.54	298,622.42	-
Louisiana	2,024,285.27	810,822.52	1,213,462.75	109,083.79	326,764.51	327,085.57	32,049.90	-	1,620.00	-	2,000.00	12,218.75	1,039,074.85	170,355.90	4,032.00
Maine	417,510.69	238,085.35	179,425.34	46,109.22	83,322.64	72,517.33	24,391.36	2,216.53	1,620.00	-	2,000.00	5,908.27	128,425.34	51,000.00	-
Maryland	894,797.56	317,044.01	577,753.55	63,063.69	108,235.27	94,080.25	26,453.25	-	-	1,620.00	2,000.00	21,591.55	449,071.55	128,682.00	-
Massachusetts	877,878.10	208,244.69	669,633.41	42,748.46	72,883.76	56,386.95	23,982.65	-	1,620.00	-	2,000.00	8,622.87	248,048.87	421,584.54	-
Michigan	2,086,036.00	869,381.29	1,216,654.71	139,007.00	332,829.40	333,552.22	35,688.66	-	1,620.00	1,620.00	2,000.00	23,063.71	863,999.71	352,655.00	-
Minnesota	1,603,178.04	857,740.12	745,437.92	110,427.47	348,555.43	350,319.99	32,213.31	-	1,620.00	1,620.00	2,000.00	10,983.92	297,337.92	427,100.00	21,000.00
Mississippi	2,225,694.01	1,260,920.93	964,773.08	135,402.66	524,051.38	537,441.35	35,250.62	-	-	945.00	1,620.00	2,000.00	24,209.92	462,709.92	42,219.16
Missouri	1,980,410.42	1,067,463.30	912,947.12	140,634.88	424,282.66	431,063.63	35,886.93	1,686.98	-	1,620.00	2,000.00	30,288.22	403,288.22	328,471.03	181,187.87
Montana	803,808.11	288,104.11	515,704.00	34,918.54	83,243.96	107,433.45	23,030.42	32,217.74	1,260.00	-	2,000.00	4,000.00	243,294.00	268,485.00	3,925.00
Nebraska	1,149,552.43	545,085.44	604,466.99	67,417.76	198,975.81	190,831.74	26,982.76	49,781.81	1,620.00	-	2,000.00	7,475.56	319,466.99	285,000.00	-
Nevada	245,998.93	119,807.43	126,191.50	14,795.47	25,698.11	41,075.58	20,583.19	11,955.08	-	1,200.00	2,000.00	2,500.00	74,524.00	51,667.50	-
New Hampshire	368,975.48	131,207.60	237,767.88	24,918.64	45,320.00	28,997.28	21,814.30	1,134.54	1,620.00	-	2,000.00	5,402.84	132,854.79	103,913.09	1,000.00
New Jersey	868,964.95	229,444.45	639,520.50	64,818.34	71,390.79	54,795.08	26,666.64	8,153.60	1,620.00	-	2,000.00	-	291,581.00	347,939.50	-
New Mexico	795,413.58	272,890.99	522,522.59	35,455.41	84,068.40	111,312.49	23,095.71	-	-	-	2,000.00	16,958.98	395,822.59	122,200.00	4,500.00
New York	3,654,163.96	791,359.36	2,862,804.60	175,677.81	282,400.98	279,783.26	40,148.61	-	1,620.00	1,620.00	2,000.00	8,108.70	1,257,895.60	1,395,486.00	209,423.00
North Carolina	3,702,480.82	1,501,835.82	2,200,645.00	196,032.50	616,134.72	635,624.59	42,624.01	-	1,620.00	-	2,000.00	7,800.00	1,343,245.00	857,400.00	-
North Dakota	822,473.58	421,967.61	400,505.97	46,527.70	137,807.12	162,611.04	24,442.25	38,705.53	1,620.00	-	2,000.00	8,253.97	126,721.97	273,784.00	-
Ohio	1,822,827.83	1,054,012.78	828,815.05	174,344.00	411,078.06	416,984.32	39,986.40	-	1,620.00	-	2,000.00	8,000.00	412,817.00	411,123.05	4,875.00
Oklahoma	1,818,675.84	940,643.51	878,032.33	114,335.77	354,232.35	356,372.97	32,688.61	51,344.98	-	1,620.00	2,000.00	28,048.83	728,032.33	150,000.00	-
Oregon	1,482,431.50	338,673.00	1,143,758.50	49,965.31	112,951.25	137,108.63	24,860.31	-	1,620.00	-	2,000.00	10,167.50	858,796.50	284,962.00	-
Pennsylvania	2,004,428.39	1,004,281.37	1,000,147.02	247,302.93	348,623.69	350,392.77	48,859.18	-	1,620.00	-	2,000.00	5,482.80	740,922.77	259,224.25	-
Rhode Island	142,505.51	70,082.65	72,422.86	14,294.63	26,217.56	6,629.43	20,522.28	-	-	-	2,000.00	418.75	53,908.75	14,800.00	3,714.11
South Carolina	1,520,647.51	857,132.51	663,515.00	112,682.90	349,274.61	351,086.81	32,487.60	2,352.22	1,620.00	1,620.00	2,000.00	4,008.37	579,801.37	74,513.63	9,200.00
South Dakota	789,129.22	418,154.39	370,974.83	44,727.29	130,397.99	150,711.11	24,223.30	59,839.87	-	1,620.00	2,000.00	4,634.83	279,434.83	91,540.00	-
Tennessee	2,024,987.97	1,166,527.97	858,460.00	145,266.42	478,227.94	488,582.42	36,450.19	-	1,620.00	-	2,000.00	14,381.00	536,960.00	316,470.00	5,030.00
Texas	3,941,524.91	2,025,310.92	1,916,213.99	260,920.43	795,775.47	827,165.32	50,515.24	82,238.79	1,620.00	-	2,000.00	5,075.67	713,504.67	1,196,048.64	6,660.68
Utah	480,188.59	216,323.34	263,865.25	27,534.10	57,596.34	80,086.85	22,132.38	13,607.42	1,260.00	-	2,000.00	12,106.25	179,041.25	84,824.00	-
Vermont	350,453.55	170,685.55	179,768.00	26,902.05	58,269.54	52,804.64	22,055.51	5,453.81	1,300.00	-	2,000.00	1,900.00	109,900.00	69,868.00	-
Virginia	2,095,902.64	934,212.51	1,161,690.13	134,126.66	374,361.83	377,835.89	35,095.44	-	1,620.00	1,620.00	2,000.00	7,552.69	852,673.13	309,017.00	-
Washington	1,268,154.84	410,705.49	857,449.35	68,315.60	142,282.78	160,383.18	27,091.95	-	1,620.00	-	2,000.00	9,011.98	509,746.98	347,702.37	-
West Virginia	1,035,217.75	563,614.00	471,603.75	107,955.11	211,331.54	204,005.96	31,912.64	-	-	1,620.00	2,000.00	4,788.75	332,973.75	131,530.00	7,100.00
Wisconsin	1,830,281.05	848,532.61	981,748.44	114,455.52	337,178.24	338,189.14	32,703.17	1,214.93	1,620.00	1,620.00	2,000.00	19,551.61	354,408.72	627,339.72	-
Wyoming	488,182.00	187,386.82	300,795.18	21,256.35	46,185.03	72,919.61	21,368.92	19,571.91	1,260.00	-	2,000.00	2,825.00	203,121.18	97,674.00	-
Alaska	103,450.00	33,450.00	70,000.00	13,950.00	-	-	10,000.00	-	-	-	2,000.00	7,500.00	70,000.00	-	-
Hawaii	548,057.55	198,497.27	349,560.28	21,394.87	66,699.96	49,793.52	21,385.77	16,590.65	-	-	2,000.00	20,632.50	349,560.28	-	-
Puerto Rico	950,000.00	544,935.19	405,064.81	103,315.19	408,000.00	-	-	-	1,620.00	-	2,000.00	30,000.00	405,064.81	-	-
Unallotted	76,544.71	76,544.71	-	-	-	22,150.00	-	-	675.00	-	20,000.00	33,719.71	-	-	-
GRAND TOTAL	\$ 73,394,487.10	\$ 34,159,840.06	\$ 41,234,647.04	\$ 4,718,560.06	\$ 12,408,000.00	\$ 12,250,000.00	\$ 1,490,000.00	\$ 555,000.00	\$ 56,560.00	\$ 31,620.00	\$ 122,000.00	\$ 528,000.00	\$ 23,465,127.65	\$ 15,527,793.50	\$ 2,241,725.82

\* - Preliminary distribution

\*\* - Excludes Regional Contract Section 205





Table 2. --Statement of direct payments to States, Hawaii, Alaska, and Puerto Rico, indicating those requiring offset by States and Territories, those not requiring such offset, and basis of distributions, as estimated for 1951.

Item	Total estimate, 1951	Amount to be paid without offset	Amount requiring offset and basis of allotment
			Basis of Allotment.
1. Permanent annual appropriation (Smith-Lever Act.....	\$4,704,710	a/ \$500,000	\$4,204,710 : Rural population.
2. Capper-Ketcham Act.	1,480,000	b/ 980,000	500,000 : Rural population.
3. Bankhead-Jones Act, Section 21, Title II....	12,000,000	c/ 12,000,000	-- : Farm population.
4. Bankhead-Jones Act, Section 23, Title II of the Act approved June 29, 1935, as amended by the Act of June 6, 1945 (Public Law 76).....	12,250,000	--	12,250,000 : Farm population, except \$500,000 to be allotted by Secretary of Agriculture on basis of special needs.
5. Additional extension work	555,000	555,000	-- : Specified by law.
6. Alaska: Act of February 23, 1929 (Extension of Smith-Lever Act to Alaska): Act of October 27, 1949 (Public Law 417).....	13,950	d/ 10,000	3,950 : Rural population.
(Extension of Capper-Ketcham Act to Alaska)	42,150	e/ 20,000	480 : Rural population

(Continued on next page)

Item	Total estimate, 1951	Amount to be paid without offset	Amount requiring offset and basis of allotment	Basis of Allotment
(Extension of Bankhead-Jones Act, Title II Section 21, to Alaska) .....		f/ 20,000	808	Farm population
(Extension of Bankhead-Jones Act, Title II Section 23, to Alaska) .....		--	862	Farm population
7. Puerto Rico: Act of August 28, 1937				
(Extension of Bankhead-Jones Act, Section 21 to Puerto Rico)	408,000	408,000	--	Specified by law.
Act of March 4, 1931, Section 3				
(Extension of Capper-Ketcham Act to Puerto Rico).....	31,348	g/ 20,000	11,348	Rural population
Act of October 26, 1949 (Public Law 406)				
(Extension of Bankhead-Jones Act, Section 23, Title II to Puerto Rico)...	101,090	--	101,090	Farm population
8. Housing Act of 1949, Title V, Section 506a (Public Law 171).....	725,000	725,000	--	Discretion of Secretary
Total, direct Federal payments.....	32,311,248	15,238,000	17,073,248	

a/ \$10,000 to each State, Hawaii, and Puerto Rico.

b/ \$20,000 to each State and Hawaii.

c/ \$20,000 to each State, Hawaii (balance on farm population basis).

d/ \$10,000 to Alaska (Act of February 23, 1929) (balance on rural population)

e/ \$20,000 to Alaska (balance on rural population)

f/ \$20,000 to Alaska (balance on farm population)

g/ \$20,000 to Puerto Rico (balance on rural population)



Table 3. --Extension field agents employed June 30 1946  
1947, 1948, and 1949

	: June 30, : 1946	: June 30 : 1947	: June 30, : 1948	: June 30, : 1949
State supervisors....	703	729	747	767
Subject-matter specialists:				
Full-time specialists ...	1 342	1,420	1,456	1,507
Part time specialists....	343	407	420	426
Total specialists.....	1,685	1,827	1,876	1,933
Total with headquarters at colleges.....	2,388	2,556	2,623	2,700
County workers:				
Agricultural agents.....	4 268	4,407	4,492	4,687
Home demonstration agents:	2 632	2,808	2,949	3,064
Boys' and girls' club agents.....	432	553	650	627
Negro extension agents...	699	733	726	732
Total county workers.....	8,031	8,501	8,817	9,110
TOTAL.....	10,419	11,057	11,440	11,810

Number of agricultural counties in the  
States Hawaii, and Puerto Rico..... 3,117  
Number of agricultural counties now having  
one or more agents..... 3,000



## STATUS OF PROGRAM

1. General - The function of the Cooperative Extension Service is education in agriculture and home economics. The broad objective is to improve the economic welfare, nutrition and health, family and community life of rural people and to help them solve the many interrelated problems which affect their lives. In this effort State extension services of the land-grant colleges cooperate with the Federal Extension Service in drafting plans of work under which local adaptations are made at the county level. Some of the ways in which the Cooperative Extension Service has accomplished important results are: counseling on farm problems; securing application of the findings of research on the whole range of farm operations; developing an understanding of the economic and social factors affecting family living and agriculture in general, and developing rural leadership.

Extension agents during the calendar year 1948 visited one out of every three farms. More than 8-3/4 million people came to the agents' offices for information and advice. The agents arranged more than 11,000 tours on which over a half million people saw better farming and homemaking practices demonstrated in their neighborhood. Through nearly a million and a half meetings, 18 million publications, news stories, radio talks, circular letters, exhibits, and many other ways, they helped people to meet their local problems of better farming and home-making. Approximately the same level of activity continued into 1949.

Extension's staff of 11,810 technically trained workers include 4,687 county agricultural agents working with the farmers and supervising extension work within their respective counties, 3,064 home demonstration agents who work with homemakers, 767 State supervisors, 1,933 subject-matter specialists. County agents, and home demonstration agents all spent considerable time in 4-H Club work. Working exclusively with rural young people were 624 4-H Club agents. Of the county workers, 732 were Negro agents. Several examples of extension programs are cited.

### a. Animal Husbandry (Livestock Production, Animal Diseases)-

The teaching efforts of the cooperative extension service contributed toward the 38.6 billion pounds of meat animal supplies produced from farms and ranches in 1948. From such production, stockmen realized a gross income of 10.1 billion dollars - a near record high. This output was sufficient to supply the civilian population of the country with 145 pounds of meat per capita. Increased efficiency in meat animal production may be illustrated by the fact that a breeding herd of 100 cattle will now provide



40 head of market cattle per year whereas a few years ago only 30 head would be available from the same size herd.

Extension livestock specialists and county agents received and handled more calls from farmers than usual. With scarce feeds and relatively high livestock prices prevailing in 1948, farmers were receptive to teaching of better methods of handling and feeding livestock as taught by extension agents. Better sires are promoted in all livestock endeavor to achieve a gradual grading up of the herds of the nation.

b. Dairy Industry - Extension dairymen are continuing through the Long-Range Dairy Program to promote economical production of high-quality milk. Main emphasis during the year has been on more and better roughage through improved all-season pastures and improved methods of curing and storing winter forage, better breeding and disease control. Extension work in artificial breeding started in the United States eleven years ago. Since the first artificial breeding association was formed in New Jersey 10 years ago, 40 States have adopted this method of breeding. There are now 963 of these associations working in cooperation with the Extension Service, the Bureau of Dairy Industry, and the State experiment stations, 224,493 dairymen as members and serving 1,743,327 cows. Extension dairymen and county agents assisted 45,000 dairymen in procuring purebred bulls and good cows. Dairy herd-improvement association work also reached its all-time peak during the year. A total of 45 States had 1,668 active associations in operation, testing 886,129 cows for 33,274 members under this extension project. It is rather significant that the States doing the most dairy herd-improvement association work are those with the highest average milk-production records.

c. Cotton - Marked progress is being made in the 7 Point Cotton Program featuring better farm management, soil care, variety selection, insect control, mechanization, more efficient labor utilization and better ginning. The value of the 1948 cotton crop was approximately \$2,300,000,000 and represented the major agricultural income in the 13 Southern States. Sixty percent of the 1948 production was in standardized one-variety communities, on approximately half the total acreage. One-variety production averaged 369.6 pounds per acre as compared to 248.9 pounds lint cotton otherwise produced. At the average price for lint cotton for the season, this would represent an increased income to farmers for one-variety production of \$441,600,000. Gin specialists visited 2,000 of the country's 8,600 gins with county agents during the year to assist in making improvements that were reflected in better ginning and more money in the growers' pockets.

d. Entomology - More than 3,000,000 farmers and almost an equal number of city people were assisted on insect problems. Extension specialists guided the public in the proper use of many new

insecticides. Cotton insects destroy annually 14 percent of the cotton crops, 10 percent of all other crops are destroyed by insects, and the losses to livestock amount to from 5 to 10 percent annually. The major phases of the specialists work were: (1) insects affecting crops; (2) insects affecting livestock; (3) pests affecting man and his health; (4) pests affecting buildings, stored products and furnishings; (5) apiculture with emphasis on pollination of small seed legumes and fruits; and (6) 4-H Club work in entomology. Campaigns were waged in every State to control stored-grain insects. Drives against the European corn borer and the cotton boll weevil during the year were the most intensive and widespread ever conducted.

- e. Agricultural Engineering - The various phases of extension work in agricultural engineering include farm housing, farm structures, farm machinery, rural electrification, cotton mechanization, and the engineering phases of land drainage, erosion control and irrigation. Farm building work has emphasized remodeling for labor efficiency, forage storage, hay drying, sanitary dairy barns and milk-houses, grain storages and better housing for the health and comfort of farm animals.

Mechanization enables fewer farmers to produce more. Group teaching through farm-machinery schools is a popular educational media. Sixty-six such schools in Missouri were attended by 9,580 farmers. In Kansas, 8,800 farmers attended their county farm-machinery schools. The sugar-beet caravan in Colorado made 11 stops and was attended by 5,925 people, who saw the latest in methods. The 20 demonstrations of grassland farming equipment in Wisconsin drew 100,000 farmers in 1946 and 1947. In Indiana, 300 farmers visited a new corn dryer on 1 farm during the 8 days it was running. That scene was a common one over the Corn Belt and is a typical extension technique. Land reclamation is a live subject in many areas. In Kansas 39,300 farmers attended 522 meetings on the subject in 63 counties.

- f. Saving Soil and Water - Soil building and soil saving have been parts of Extension's program of work for a third of a century. County agents have always emphasized the importance of growing soil-improvement crops and adding lime and other needed amendments to the soil. This work over the years has laid a sound cornerstone for expanded soil and water conservation programs of today. County agents cooperated with the Soil Conservation Service in setting up soil conservation districts and worked with technicians of the Soil Conservation Service toward soil building, soil saving, and land use. As the potential area for new districts has been reduced through district organization, emphasis has been progressively intensified in assistance with educational activities for carrying out local programs. Putting land to its proper use is a basic factor in conserving soil and raising needed food and fiber. Extension workers helped more than half a million farmers to treat their land according to its needs and use it in keeping with its capabilities.



- g. Food and Nutrition - Better nutrition in rural America was an important goal of Extension's program during the year. Ninety-two extension nutritionists in the States, Hawaii, and Puerto Rico worked through extension home demonstration agents, who taught nutrition through the home demonstration and the 4-H Clubs, meetings with special groups, newspapers, and over the radio. During the past year, families adopting improved food management practices that safeguard the nation's health include:

1,204,492 families assisted in improving food supply by making changes in home food production.

1,561,538 families assisted with food-preservation problems.

1,408,512 families assisted with food preparation.

1,357,258 families assisted in improving diets.

177,001 families assisted with child-feeding problems.

2,981 nutrition or health clinics organized through the efforts of extension workers.

- h. Family Economics - Basic information on the relation of changing prices, farm income, cost of family living, and adjustments ahead as both national and international situations changed was substantially the type taught by extension workers. Nearly a half million families reported that they adjusted their spending plan as a result of studying home finances. During the 1948 calendar year:

56,247 families were assisted in developing farm and home plans.

526,740 families reported using timely economic information in making adjustments in family life.

273,019 4-H boys and girls kept their own personal accounts.

85,925 people kept home accounts.

- i. Clothing and Textiles - Help in home sewing is still a number one demand. High living costs as well as style and fabric changes have increased requests for help on buying problems. Intelligent direction of choice gained through consumer education will aid in weeding out of the market much of the poor quality merchandise that fails to move because of lack of demand and sales. Extension workers report:

933,540 families assisted with clothing construction problems.

764,194 families assisted with the selection of clothing and textiles.

575,505 families assisted with the care, renovation, and remodeling of clothing.

146,294 families assisted with clothing accounts or budgets.



- j. Marketing - Educational and demonstrational work in marketing is receiving increasing emphasis. The readjustments in markets and the return to a more normal peacetime pattern of distribution and consumption is showing up the need for improving marketing organization, methods and practices. The Cooperative Extension Service has started the enlargement of its educational programs to meet the needs in improving marketing and to aid in the proper application of the research that is beginning to be available in increasing volume. During the past year county extension agents spent 83,000 days' work to direct assistance with marketing problems involving the handling of farm products valued at over 3 billion dollars. State extension specialists devoted 7,000 days' work in the counties assisting county agents with educational programs on commodity marketing. County extension agents gave assistance on over 24,000 different marketing programs and activities involving facilities, marketing agreements and orders, surplus removal, transportation, market information, etc. Also, assistance was given to 13,364 private marketing agencies and 16,201 cooperative marketing and purchasing agencies.
- k. Farm Management - Extension economists and farm-management specialists have a constant job through county and home demonstration agents of keeping farmers posted on economic matters that affect agriculture. They spearhead planning and management studies designed to meet problems inherent in modern farm and home life. Successful farmers are more and more looking at the way crops, livestock, machinery, production practices, labor, and land fit together as a whole. Farm planning is the best way to help them do this. The Extension Service is rapidly expanding this type of assistance to farm families. Farm planning considers the income-producing capacity of the farm, the family living, and the proper use of available resources. A regional workshop on farm and home planning was held for 65 extension workers in the Midwest. 115,509 farm families were assisted in developing farm plans.
- l. Rural Sociology - There are now 42 States employing specialists to give leadership and technical assistance in the development of educational programs on rural health services and facilities, recreation, group discussion, and rural leadership training and community life development. In 30 of these States, the programs are less than 5 years old. The State specialists work with county agricultural and home demonstration agents in developing and carrying on a wide variety of programs and activities with rural people. Increasing efforts are being made with 4-H Club members, especially the older groups, on community life programs.
- m. 4-H Club Work - The equal training of the head, heart, hands, and health of rural young people through 80,286 community 4-H Clubs reached a new high of 1,829,250 members during the year. Creating Better Homes Today for a More Responsible Citizenship

Tombrow was the theme of 4-H Club Work for the year. This makes a grand total of 13,606,069 who have participated in club work at various times. With boys and girls in every State enrolled in various phases of extension teaching, the basic principles of sound farming, homemaking practices were taught to youth who soon will be among the leading citizens of the country. A summary of 4-H Club work includes the following accomplishments for 1948 as follows:

	<u>Number of units involved</u>
Gardening	98,789 acres
Poultry	7,820,522 birds
Livestock	844,406 animals
Food selection and preparation	26,750,492 meals
Food preservation	12,676,448 quarts
Clothing made and remodeled	2,134,114 garments

#### n. Summary of Extension Influence.

Estimated number of families influenced by various phases of extension work during the year ended December 31, 1948:

Families changing agricultural practices	4,788,023
Families changing home practices	3,157,030
Families with 4-H members enrolled	1,365,757
Families influenced by some phase of extension work	6,598,057

SOME ACTIVITIES OF COUNTY AGRICULTURAL,  
HOME DEMONSTRATION AND CLUB AGENTS

Activities reported for all lines of work, Home Demonstration, 4-H Club and County Agricultural Agent		
General Activities	(Calendar Year 1948) Number	Counties reporting
Percent of time devoted to:		
Work with adults.....	63.66	
Work with 4-H Clubs and older youth.....	36.34	
Office work.....	39.19	
Field work.....	60.81	
Farm or home visits made.....	3,497,776	3,006
Different farms or homes visited.....	1,991,092	3,003
Office calls.....	8,506,710	3,009
Telephone calls.....	7,578,844	3,004
News articles or stories published.....	834,735	2,911
Bulletins distributed.....	18,726,905	2,911
Radio talks broadcast or prepared for broadcasting.....	105,348	2,105
Adult leader-training meetings held.....	78,862	2,774
4-H Club and older youth leader- training meetings held.....	53,219	2,702
Method demonstration meetings held for adults.....	391,208	2,918
Method demonstration meetings held for 4-H Clubs and older youth.....	342,490	2,752
Adult result demonstrations conducted.....	204,316	2,499
Adult tours conducted.....	22,851	2,398
4-H Club and older youth tours conducted.....	15,487	2,200
Achievement days held for adults.....	6,820	2,051
Achievement days held for 4-H Clubs and older youth.....	20,765	2,642
Total of all meetings held by agents.....	1,499,749	2,916
Total attendance at such meetings.....	52,996,475*	2,916

\*Does not include attendance at meetings held by local leaders.





(b) Salaries and expenses, Administration and Coordination  
of Extension Work

Appropriation Act, 1950.....	\$885,500
Anticipated pay adjustment supplemental.....	16,200
Activities transferred in the 1951 Estimates from "Salaries and expenses, Farm Housing, Department of Agriculture" for providing technical advice and assistance in farm housing.....	28,700
Base for 1951.....	930,400
Budget Estimate, 1951.....	958,200
Increase.....	<u>\$27,800</u>

SUMMARY OF INCREASES, 1951

To provide technical advice and assistance in farm housing.....	\$21,300
To place on a full-year basis in 1951, pay adjustments under P. L. 429 which were in effect for only a part of fiscal year 1950.....	\$6,500

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

	:	:	:Increase or decrease:		:
	:	:	: P.L. 429 :		: 1951
Project	: 1949	:(estimated):	adjustment:	Other	:(estimated)
1. General	:	:	:	:	:
administration	:	:	:	:	:
and business	:	:	:	:	:
service.....	:\$188,174:	\$188,716:	÷\$2,025:	- -	: \$190,741
2. Review and	:	:	:	:	:
analysis of	:	:	:	:	:
State budgets,	:	:	:	:	:
projects, and	:	:	:	:	:
plans, and	:	:	:	:	:
examination of	:	:	:	:	:
State expenditures	:	:	:	:	:
from Federal	:	:	:	:	:
payments .....	45,975:	49,018:	÷453:	- -	: 49,471
3. Planning and	:	:	:	:	:
coordination of:	:	:	:	:	:
State and	:	:	:	:	:
county extension	:	:	:	:	:
work.....	159,480:	167,681:	÷1,191:	- -	: 168,872
4. Development of:	:	:	:	:	:
technical sub-	:	:	:	:	:
ject matter for:	:	:	:	:	:
use by State	:	:	:	:	:
extension forces	140,515:	176,920:	÷286:(1):	÷\$21,300:	: 198,506

(Continued on next page)

Project	Increase or decrease				
	1949	1950 (estimated)	P.L. 429 adjustment	Other	1951 (estimated)
5. Field studies of extension work, and the training of extension workers.....	\$97,715:	\$96,853:	+\$823:	- -	\$97,676
6. Preparation and distribution of visual material and extension literature to Department and State extension forces.....	148,329:	160,512:	±1,116:	- -	161,628
7. Program development and coordination of extension agricultural economics.....	88,221:	90,700:	±606:	- -	91,306
Total pay adjustment costs					
Public Law 429	[ - - ]	[16,900]	[±6,500]	[ - - ]	[23,400]
Unobligated balance.....	21,430:	- -	- -	- -	- -
Total available....	889,839:	930,400:(2)	±6,500:	±21,300:	958,200
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture....	±3,983:	- -			
Transfer in 1950 estimates from "Printing and binding, Department of Agriculture"....	-22,622:	- -			
Transfer in 1951 estimates from "Salaries and expenses, farm housing, Department of Agriculture"....	- -	-28,700:			

(Continued on next page)



Project	1949	1950 :(estimated)	:Increase or decrease:	
			: P.L. 429 :	: 1951 :(estimated)
Anticipated pay				
adjustment				
supplemental.....	- -	-16,200		
Total appropriation :				
or estimate.....	871,200	885,500		

#### INCREASE

The increase of \$27,800 in this item for 1951 is composed of the following:

(1) Increase of \$21,300 to provide technical advice and assistance in farm housing.

Objective: To provide necessary supervisory and technical assistance to develop and carry out educational work on housing and farm buildings programs.

Problem and Significance: Funds available for this purpose in the fiscal year 1950 (\$21,300) are not adequate to provide the necessary staff of agricultural engineers and home economists that are essential to properly carry on the work in conformity with the provisions of the Act. The allocation for fiscal year 1950 provided for preliminary work, on a part year basis, to develop plans and procedures and to initiate the program work in the field.

Plan of Work: The additional funds requested would make it possible to employ on a full year basis the necessary supervisory, technical and clerical staff in the Washington office, to plan, conduct and supervise educational programs in all the specialized phases of the broad field of farm housing, to coordinate Federal and State cooperative extension work, and to furnish suitable subject matter for planning adequate farm houses and farm buildings commensurate with farm income.

(2) Increase of \$6,500 to place on a full-year basis in 1951 pay adjustments under P. L. 429 which were in effect for only a part of the fiscal year 1950.



## STATUS OF PROGRAM

1. General - Federal Extension Service makes available, through the Cooperative Extension Service, the results of research in agriculture and home economics to those who can put such information into practice, maintains contacts with all agencies of the Department, and coordinates the educational work of the Department with that of the Cooperative extension services of the several States and Territories. The responsibilities of the Federal Service also include leadership of the whole cooperative extension system, keeping State extension services informed of developments in programs and policies, aiding the States in developing effective and timely educational programs, studying the results of such programs, developing improved extension teaching techniques and procedures, and helping to coordinate the educational activities of the several States as they relate to national or regional programs. In turn the Extension Services in the States channel matters for the attention of the Department through the Federal agency.
2. Annual examination - For the fiscal year 1949, State budgets covering contemplated expenditures of more than \$65,000,000 of Federal and State extension funds and 1,104 plans of work were reviewed. Vouchers were examined involving approximately \$40,000,000 of Federal and State offset funds, including payrolls and travel expenses, to determine if each expenditure was in accordance with the purpose of the appropriations approved by Congress, and in line with approved work plans and projects.
3. Planning, Coordination and Leadership - The 767 State Extension Directors and supervisors were assisted by Federal Extension leaders in the organization, planning, coordination, and operation of cooperative extension work in the 48 States and 3 Territories with the primary objective to develop an effective educational program through the work of 9,110 county extension agents. Through these county agents flows the stream of educational activity to the rural people. Leadership, counsel, management and training were given through national and regional workshops and conferences on the various lines of work such as administration, county agent work, home demonstration work and 4-H Club work. Activities in support of this work include:
  - National and Regional 4-H Club Camps.
  - National Home Demonstration Week.
  - Observance of Rural Life Sunday by 4-H Club members.
  - National 4-H Club Achievement Week.
  - Regional Administrative Conferences for Extension Directors and State 4-H Club Leaders.
  - National Conferences for Extension administrators, supervisors and State 4-H Club leaders on extension's program for young adults.
  - Follow-up with State Extension Services on prevention and control of juvenile delinquency.



4. Technical Subject Matter in Agriculture is planned, developed and coordinated for effective use by State Extension Services. Federal specialists make the best findings of research and farming experience in any State available throughout the country wherever they are applicable. They develop State, county, and farmer cooperation with national agricultural programs and production goals by clarifying the purposes and means of achievement. The work embraces:

Agricultural production for national requirements, for balanced farming operations, for production efficiency through science, labor, power, and equipment.

Agricultural conservation including food and feed conservation, soil conservation, water utilization and drainage, farm forestry, and wildlife conservation.

Farm and home improvement including housing and landscaping, farmstead improvement, rural electrification utilization and farm accident and fire prevention.

Agricultural 4-H Club subject matter, covering crops, gardening, entomology and bees, calves, pigs, poultry, conservation, tree planting, tractor maintenance, electrification, and safety and fire prevention.

5. Technical Subject Matter in Home Economics - The work of the subject matter specialists in home economics is conducted through regular extension organization channels, such as 4-H Clubs, home demonstration clubs, extension work with young men and women, and farm and home unit demonstrations. During the past year, State specialists were assisted in developing, inaugurating and improving educational programs and techniques. The work embraces:

Food and Nutrition as related to the production, preparation, and preservation of food.

Home Management-Family Economics to assist farm people in adjusting to changing economic situations.

Clothing and Textiles including clothing construction at home, selection, care and repair of adult and children's clothing.

Parent and Family Life Education covering growth and development of children and adults, and human relationships.

Housing and House Furnishings to aid families with house planning and remodeling, choice and installation of utilities, work simplification, care and repair of furniture and furnishings.

Consumer Education to provide consumers with objective information upon which they can make wise choices of food, clothing, furnishings, or other article or service needed.

6. Educational Programs in Agricultural Economics and Rural Sociology are divided into five fields: (1) general economics and outlook (2) farm management (3) marketing (4) farm credit and (5) rural sociology including rural health services. The Federal staff assists

the State Extension Services in developing and improving their educational programs on special problems in connection with agriculture and rural life; reviews economics research work developed by research agencies and assists in incorporating their findings into State economics extension programs; informs State extension workers of new developments in Federal agency programs; and develops regional or national economic analyses in teaching form pertinent to special and specific problems.

7. Field Studies and Training - National leadership was provided in four specific areas of importance to the continuous development of the cooperative extension system of adult education as follows:

- Scientific evaluation of extension programs and methods.
- Analysis of reports of extension activities and accomplishments.
- Training of extension personnel.
- Program to acquaint representatives of other countries with the United States system of cooperative extension work.

Studies completed and under way include:

- Community Organization and Extension in Maine.
- General Effectiveness of Extension Work in Spokane County, Washington
- Nation-wide Study of methods of program determination.
- Western States Regional 4-H study of factors involved in holding first-year 4-H Club members.
- Southern States regional 4-H study of factors involved in holding 4-H leadership
- Central States regional study on effectiveness of radio as a method of teaching by county workers.

More adequate preparatory training for extension workers was emphasized. During the year, 4 workshops were held--attended by 292 State and Federal extension workers. Nine extension summer schools were held at 4 regional training centers; 445 extension workers from 43 States attended.

8. Educational Materials and Techniques - Cooperative extension employees were kept informed by a day to day flow of Department news concerning developments in program, policy, and situation, and other agency programs. Better teaching methods and stronger State information programs were encouraged by:

- Approving and suggesting improvements in all State cooperative visual, publications, radio, and other information plans of work.

- Visiting 40 State extension offices to help in building stronger programs and training the staff in better mass teaching methods.

- Holding 14 radio training schools in 7 States for 380 extension workers.

Holdin a National Visual Aids Workshop attended by extension leaders from 39 States and Territories to exchange techniques and develop stronger use of visual aids in teaching improved farming and home making practices.  
Preparing extension stories and helping place them in 25 large magazines and newspapers.  
Arranging for 99 radio programs and 18 television programs supporting cooperative extension work.  
Preparing 25 stories on extension work for national news services, and newspapers for domestic and foreign circulation.

Teaching aids included:

Production of 9 educational slide films for local use.  
Distribution of 30,000 slide films on requests, each containing usually from 25 to 60 educational pictures.  
Supplying State extension workers with 4,200,000 copies of Departmental and other agency publications.  
Releasing through State extension editors 263 radio recordings, 238 mimeographed radio form flashes, and 55 suggested educational news stories for localized use.  
Making 1,741 new photographs, 7,104 photographic prints, and preparing 300 educational drawings for use in extension and related educational channels.



(c) Bankhead-Jones Act, Section 23, Title II (Act of June 29, 1935) as amended by the Act of June 6, 1945, Public Law 76

(Allotted to Federal Extension Service)

Allotment, 1950.....	\$250,000
Budget estimate, 1951.....	<u>250,000</u>
Change.....	<u>    </u>

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950 (estimated)	1951 (estimated)
Federal administration under Bankhead-Jones Act, section 23 title II.....	\$218,482	\$250,000	\$250,000
Total pay adjustment costs, Public Law 429.....	[ - - ]	[5,169]	[7,681]
Unobligated balance.....	11,518	- -	- -
Total allotment.....	230,000	250,000	250,000

Under the Act approved June 6, 1945, 2% of the amount appropriated thereunder is designated for paying the expenses of the Federal Extension Service. The Budget estimates for fiscal year 1951 include an amount of \$12,500,000, of which the proportionate share for the Federal Extension Service is \$250,000, the same amount as is available for the fiscal year 1950.

The statement of recent and current activities as discussed under the appropriation "Administration and Coordination of Extension Work" also applies to the work under this allotment. In addition, the funds are being used to expand and improve 4-H Club work with rural boys and girls, and work with older out-of-school youth; to develop more effective programs in nutrition, food conservation, and homemaking; to promote more efficient marketing and distribution of farm products; and to organize effective activities in connection with problems of rural health.

The authorization and appropriation applicable to this allotment to the Federal Extension Service are as follows:

	Authorization	Appropriation
1946	\$90,000	\$90,000
1947	170,000	170,000
1948	250,000	170,000
1949	250,000	230,000
1950	250,000	250,000
1951	250,000	250,000 (Budget estimate)

(d) Cooperative Agricultural Extension Work  
(Permanent Annual Smith-Lever Appropriation)

Permanent appropriation, 1950.....	\$4,704,710
Budget estimate, 1951.....	<u>4,704,710</u>
Change.....	<u>      </u>

PROJECT STATEMENT

Project	1949	1950 (Estimated)	1951 (Estimated)
Payments to States, Hawaii and Puerto Rico for cooperative agricultural extension work :	:	:	:
(Smith-Lever Act).....	\$4,704,710	\$4,704,710	\$4,704,710

This permanent specific appropriation for cooperative agricultural extension work was provided for under the Smith-Lever Act, approved May 8, 1914 (7 U.S.C. 341-343, 344-348), as amended by the extension of this Act to the Territory of Hawaii by the Act of May 16, 1928 (7 U.S.C. 386-386b) and to Puerto Rico by the Act of March 4, 1931 (7 U.S.C. 386d-386f). Under the provisions of these Acts \$10,000 is appropriated annually to each State, Hawaii, and Puerto Rico without requirement of State or Territorial offset, and the remainder of the appropriation is distributed on the basis of rural population. The Smith-Lever Act is the basic act under which cooperative extension work is conducted by the Department and State colleges of agriculture. The general statement for cooperative extension work applies also to the work performed under this appropriation.

# EXTENSION SERVICE

## Functional Summary of RMA Projects Carried Out Under Title II

Functional Classification	1949	1950 :(estimated)	Adjustments for 1951			1951 :(estimated)
			P. L. 429	Contract	Other	
MARKETING RESEARCH AND SERVICES						
I. Basic data and information:						
c. Promoting greater use of market information through State educational and service agencies:	\$21,813	\$27,000				\$27,000
II. Expansion of outlets for farm products:						
d. Consumer education.....	50,757	106,000				106,000
V. Evaluation and improvement of marketing system: facilities, methods, policies and organization and pricing practices:						
d. Improving marketing methods and efficiency through State educational and service programs.....	369,807	490,000		+2,100	+75,000	+3,000(a) : 570,100
Total, Title II, RMA.....	452,377	623,000		+2,100	+75,000	+3,000 : 703,100

(a) An adjustment to provide an additional \$3,000 required to meet increased demands by the States for technical assistance from the Federal Extension Service.

### Objective:

Increasing demands by the States for technical advice and assistance in developing and conducting additional educational work in marketing, the preparation of special information for use by State RMA project leaders, and the developing of especially designed and more effective methods and techniques have placed a heavy load on the Federal staff resulting in the need for additional clerical assistance. The \$3,000 adjustment would enable Extension Service to provide for the necessary clerical assistance.





STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS, WORKING FUNDS, AND TRUST FUND  
(Amounts Shown Include Pay Adjustment Costs)

ITEM	Obligations, 1949	Estimated obligations, 1950	Estimated obligations, 1951
<u>Administrative Expenses, Section</u>			
<u>392, Agricultural Adjustment Act</u>			
<u>of 1938 (Extension Service):</u>			
To provide technical assistance			
in connection with the agri-			
cultural conservation program			
in Alaska .....	\$1,000	\$1,000	\$1,000
<u>Farm and Other Private Forestry</u>			
<u>Cooperation, Department of Ag-</u>			
<u>riculture (Extension Service):</u>			
For cooperation with States for			
extension activities in de-			
veloping farm forestry .....	104,163	106,343	256,343
<u>Flood Control, Department of Ag-</u>			
<u>riculture (Extension Service):</u>			
Assistance in preparation of			
an agricultural plan for the			
Columbia River Basin area ....	- -	- -	3,000
<u>Research and Marketing Act of</u>			
<u>1946, Department of Agriculture</u>			
<u>(Extension Service):</u>			
For marketing research and mar-			
keting service activities ....	452,377	623,000	703,100
<u>Working Funds, Agriculture, Gen-</u>			
<u>eral (Extension Service): Ad-</u>			
<u>vances from:</u>			
<u>National Military Establish-</u>			
<u>ment, Department of the Army:</u>			
To provide technical assist-			
ance in connection with the			
training of German nationals			
in extension work .....	30	1,470	- -
<u>Department of State:</u>			
To provide technical assist-			
ance in connection with the			
training of a Korean in ex-			
tension work .....	- -	100	- -
Total, Working Funds .....	30	1,570	- -

(Continued on next page)

ITEM	Obligations, 1949	Estimated obligations, 1950	Estimated obligations, 1951
<u>Miscellaneous Contributed Funds,</u>			
<u>Department of Agriculture,</u>			
<u>(Allotted to Extension Service)</u>			
<u>(Trust Fund):</u>			
For contributions toward coop-			
erative work with Land-Grant			
colleges on appropriate in-			
service training activities			
through summer-session courses			
for extension workers .....	1,784:	2,100:	2,100
<u>Expenses, Economic Cooperation</u>			
<u>Administration, Executive Office</u>			
<u>of the President (Allocation to</u>			
<u>Agriculture)(Extension Service):</u>			- -
To provide technical assistance			
in connection with the train-			
ing of participating country			
delegations brought to the			
United States under Recovery			
Program's Technical Assistance			
provisions .....	2,575:	8,125:	- -
<u>International Information and</u>			
<u>Educational Activities, Depart-</u>			
<u>ment of State (Transfer to Agri-</u>			
<u>culture)(Extension Service):</u>			
Trainee program in agriculture			
and home economics extension			
work .....	10,194:	11,000:	a/ - -
<u>TOTAL, OBLIGATIONS UNDER ALLOT-</u>			
<u>MENTS, WORKING FUNDS, AND TRUST</u>			
<u>FUND .....</u>	572,123:	753,138:	965,543

a/ Allotments under this transfer for the fiscal year 1951 have not yet been determined.



AGRICULTURAL RESEARCH ADMINISTRATION

Purpose Statement

The Agricultural Research Administration was established by the Secretary of Agriculture on December 13, 1941. This action was confirmed by Executive Order No. 9069, issued February 23, 1942. The organization was continued without change under Reorganization Plan No. 1 of 1947. It is composed of the following units:

- Office of Administrator (including the Agricultural Research Center)
- Office of Experiment Stations
- Bureau of Animal Industry
- Bureau of Dairy Industry
- Bureau of Plant Industry, Soils, and Agricultural Engineering
- Bureau of Entomology and Plant Quarantine
- Bureau of Agricultural and Industrial Chemistry
- Bureau of Human Nutrition and Home Economics

Through these agencies the Administration carries on most of the Department's research in the physical and biological sciences. It also has the responsibility for coordinating all research activities (other than economic research) of the Department. It operates the 12,000 acre Agricultural Research Center at Beltsville, Maryland where numerous research projects of the Department's bureaus, including some bureaus outside the Agricultural Research Administration, are under way. Much of the Administration's research is conducted in cooperation with the State agricultural experiment stations and with other research agencies, both public and private.

The Administration also conducts those control and regulatory programs of the Department which involve the enforcement of plant and animal quarantine, meat inspection, and the control of diseases and insect pests of animals and plants.

The Administration is responsible for the program of Federal-grant funds made available to the States for the operation of agricultural experiment stations and for the coordination and integration of research work under way in the Department with that of the State agricultural experiment stations.

Administration of the Research and Marketing Act is also the responsibility of the Agricultural Research Administration. Research under this Act is conducted by a number of agencies in the Department, and includes economic and marketing research.

A more detailed discussion of work performed is included in the statements prepared by the individual bureaus of the Administration.

The Office of the Administrator, Agricultural Research Administration, includes scientific and administrative personnel engaged in planning,

coordinating, and directing, in conjunction with Bureau chiefs, the research and regulatory programs of agencies within the Administration to assure effective utilization of resources and an integrated research program which, in the light of research conducted by other public agencies and private industry, is adapted to the changing needs of agriculture and the Nation's requirements for food, feed, and fiber.

Attached to the Office of the Administrator, and subject to his supervision, is the Agricultural Research Center at Beltsville, Md., which provides facilities and services for many scientific investigations carried on by various agencies of the Department,

The Office has responsibility for coordinating all research work of the Department (other than economic) and administers specific related programs such as:

1. Research and Marketing Act
2. Federal research program on agricultural problems of Alaska
3. Research on strategic and critical agricultural materials
4. The Special Research Fund authorized by the Bankhead-Jones Act of June 29, 1935.

The staff included on November 30, 1949, 72 employees in Washington and 281 full-time and 55 part-time employees engaged in field activities, located principally at Beltsville, Md., and in Alaska.

	Estimated, <u>1950</u>	Budget estimate, <u>1951</u>
Appropriated funds:		
Salaries and expenses	\$ 572,000	\$ 475,000

AGRICULTURAL RESEARCH ADMINISTRATION  
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Appropriation Act, 1950 .....	\$414,400
Supplemental appropriation for 1950 (Second Supplemental Appropriation Act, 1950) .....	150,000
Anticipated pay adjustment supplemental .....	7,600
Base for 1951 .....	572,000
Budget Estimate, 1951 .....	475,000
Decrease .....	<u>-97,000</u>

SUMMARY OF INCREASES AND DECREASES, 1951

To provide personnel and facilities for making available to agricultural leaders and other groups interested in agricultural research adequate information concerning the work being conducted at the Agricultural Research Center .....	\$19,700
For more adequate maintenance of buildings, roads, and grounds, and clearing, draining, and cleanup of land for crop production at the Agricultural Research Center .....	429,700
To place on a full-year basis in 1951, pay adjustments under Public Law 429 which were in effect for only a part of fiscal year 1950 .....	43,600
Decrease due to elimination of non-recurring item provided in 1950 for replacement of granary building and inventory destroyed by fire at the Agricultural Research Center .....	-150,000

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950	P.L. 429	Other	1951
		(estimated)	adjustment		(estimated)
1. Administration and over-all direction of the Agricultural Research Adminis- tration .....	\$162,413	\$161,800	+\$1,200	- -	\$163,000
2. Supervision of maintenance, operation, and furnishing of facilities and services at the Agricultural Research Center...	271,937	260,200	42,400	449,400(1)	312,000

(Continued on next page)



Project	1949	1950 (estimated)	Increase or decrease		1951 (estimated)
			P.L. 429 adjustment	Other	
3. Replacement of granary building and inventory de- stroyed by fire ..	---	\$150,000	---	-150,000(2)	---
Total pay adjust- ment costs,					
Public Law 429 ..	---	[8,400]	[+3,600]	[+300]	[12,300]
Unobligated balance .....	1,178	---	---	---	---
Total available	435,528	572,000	+3,600(3)	-100,600	475,000
Transfer in 1950 estimates from "Printing and binding, Depart- ment of Agricul- ture" .....	-5,628	---			
Anticipated pay adjustment supplemental ....	---	-7,600			
Total appropria- tion or estimate	429,900	564,400			

#### INCREASES AND DECREASES

The net decrease of \$97,000 for 1951 is composed of the following:

(1) Increase of \$49,400 under the project "Supervision of maintenance, operation, and furnishing of facilities and services at the Agricultural Research Center", composed of:

(a) Increase of \$19,700 to provide personnel and facilities for making available to agricultural leaders and other groups interested in agricultural research adequate information concerning the work being conducted at the Agricultural Research Center.

Need for Increase: Within recent years there has been an increasingly large number of agricultural leaders and groups from this country and abroad who desire to visit the Research Center for the purpose of acquiring information on the progress of current research on better farming and farm living and on the fundamental sciences in agriculture. These people include Directors of State Agricultural Experiment Stations, Directors of State Extension Services, County and Home Demonstration Agents, Vocational Agricultural Instructors, 4-H Club members and Future Farmer groups, as well as representatives of agricultural interests of foreign countries and research workers from State Agricultural Experiment Stations, other public agencies and private industry.

During the fiscal year 1949, the over-all work at the Center was demonstrated to over 5,400 such individuals. In addition, thousands of individuals and small parties have visited one or more units at the Center in which they were particularly interested. In the month of June, 1949, 1,250 individuals were conducted through the Center and given an explanation of the research in progress. However, lack of funds and personnel makes it impossible for the Department to discharge adequately this responsibility to the public. Not only is the present service to visitors inadequate but it has been necessary in many instances to decline requests from school groups, colleges, women's clubs and other interested groups. Under the present arrangement, much of the time of many of the most able research workers at the Center is diverted from research effort in explaining the research program to individuals and groups.

Plan of Work: It is proposed to relieve, in part, the burden on research workers and provide better service to the public by better organized effort to accommodate scientists and other visitors. In charge of this work at the Research Center would be one professional employee having the necessary technical training and ability to explain the various research projects under way, including ability to prepare appropriate leaflets and other literature to supplement such discussions. In addition, one clerk-stenographer would be provided. Exhibits would also be provided to facilitate explanation of the programs in progress. One additional professional employee and clerk-stenographer, on a half-time basis, would be provided in the Office of Administrator to coordinate all arrangements for visits to the Center and to research bureaus, since much of this work requires contact with agencies in Washington.

(b) Increase of \$29,700 to provide for more adequate maintenance of buildings, roads and grounds, and clearing, draining, and cleanup of land for crop production at the Agricultural Research Center.

Need for Increase: The Agricultural Research Center operates under this appropriation 47 buildings such as laboratories, shops, warehouses, and service buildings and 36 buildings such as machinery sheds, pump houses, small storage buildings, and water storage tanks; and maintains 55 miles of roads. The increasing cost of labor, materials, and equipment has made it impossible to properly repair and maintain these facilities. From time to time special non-recurring increases have been provided for emergency situations of which the following are examples:

Fiscal year 1948:

Repairs to sewage disposal plant and mains ..... \$7,300

Fiscal year 1949:

Painting and repair of buildings ..... 14,000

Instead of asking for such non-recurring increases at intervals a recurring increase is proposed to strengthen the maintenance program sufficiently to enable the Center to support a continuing schedule of upkeep.

There is also a need for better maintenance of lawns and grounds and clearing, draining, and general cleanup each year of a portion of the 1,000 acres of farm land at the Research Center which needs to be reclaimed for crop production, but which is at present not useable.

Plan of Work: Painting and repair of buildings would be performed by the Mechanical Shop staff. Each year a group of buildings most urgently needing painting and repair would be selected until such time as all have received needed attention. After this the funds would be used for a continuing program of upkeep. Road maintenance would be performed under the supervision of the Engineering Service Unit. The proposed increase would allow for more adequate maintenance, such as subgrade, base, and drainage corrections and application of retreatment to prevent reversion to gravel surfaces.

Clearing, draining, and cleanup each year of a part of the 1,000 acres to be reclaimed for crop production and regular maintenance of lawns and grounds would be done principally by the Farm Operations group.

(2) Decrease of \$150,000 due to elimination of non-recurring item provided in 1950 for replacement of granary building and inventory destroyed by fire at the Agricultural Research Center.

(3) Increase of \$3,600 to place on a full-year basis in 1951 pay adjustments under P. L. 429 which were in effect for only a part of the fiscal year 1950.



AGRICULTURAL RESEARCH ADMINISTRATION  
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Alternate Project Statement

Project	1949	1950	1951	Increase(+) or Decrease(-)	Estimated	Section 10(a)	Section 10(b)	Total	Grand Total
1. Administration and over-all direction of the Agricultural Research Administration:	\$162,413	\$161,800	\$163,000	+ \$1,200	\$140,500	\$83,000	\$223,500	\$386,500	
2. Supervision of maintenance, operation and furnishing of facilities and services at the Agricultural Research Center:	271,937	260,200	312,000	+ 51,800					312,000
3. Replacement of granary building and inventory destroyed by fire .....	- -	150,000	- -	-150,000					
4. Pay adjustment cost:	- -	8,400	[12,300]	[+ 3,900]	[2,800]	[1,900]	[4,700]	[17,000]	
Unobligated balance ..	1,178	- -	- -	- -	- -	- -	- -	- -	
Total available .....	435,528	572,000	475,000	- 97,000	140,500	83,000	223,500	698,500	
Transfer in 1950 estimates from "Printing and binding, Department of Agriculture":	-5,628	- -	- -	- -	- -	- -	- -	- -	
Anticipated pay adjustment supplemental ..	- -	- 7,600	- -	- -	- -	- -	- -	- -	
Total appropriation or estimate .....	429,900	564,400							

# RMA Projects

Finan- cial Project No.	RMA Project No.	Project Title	1949	1950 :(estimated)	P.L. 429	Contract	Other	1951 :(estimated)
		Section 10(a) utilization:						
		Research						
1	443	Inventory of agricultural:						
		research, marketing and						
		statistical projects and						
		analysis of related pro-						
		gram fields .....	10,977	23,100	+ 300	--	--	23,400
1		Over-all administration,						
		planning, and coordination						
		of research, under the						
		Act of June 29, 1935; as						
		amended. a/ .....	97,894	116,300	+ 800	--	--	117,100
		Total, Section 10(a) ..	108,871	139,400	+1,100	--	--	140,500
		Section 10(b) Research						
		other than Utilization ..						
1	443	Inventory of agricultural:						
		research, marketing and						
		statistical projects and						
		analysis of related pro-						
		gram fields .....	3,721	13,300	+ 100	--	--	13,400
1		Over-all administration,						
		planning, and coordination						
		of research, under the						
		Act of June 29, 1935; as						
		amended. a/ .....	47,942	68,800	+ 800	--	--	69,600
		Total, Section 10(b) ..	51,663	82,100	+ 900	--	--	83,000
		Total, RMA .....	160,534	221,500	+2,000	--	--	223,500

a/ Includes, in 1949 and 1950, allotments to Office of Secretary and Office of Information for functions, the cost of which will be assumed by Office of Administrator, Agricultural Research Administration.

CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

- Salaries and expenses: For necessary expenses of the
- 1 Office of Administrator, including [the salary of the Administrator at \$10,330 per annum, and] personal services
  - 2 in the District of Columbia, [and for] the purchase of one passenger motor vehicle, and the maintenance, operation, and furnishing of facilities and services at the Agricultural Research Center, [\$414,400] and not to exceed \$5,000
  - 3 for extension of the solvents storage building, \$475,000: Provided, That the appropriation current at the time services are rendered may be reimbursed (by advance credits or reimbursements based on estimated or actual charges) from applicable appropriations, to cover the charges, including handling and other related services, for equipment rentals (including depreciation, maintenance, and repairs); for services, supplies, equipment and materials
  - 4 furnished [, stores of which may be maintained at the Center, and for building construction, alteration, and repair performed by the Center in carrying out the purposes of such applicable appropriations and the applicable appropriations may also be charged their proportionate share of the necessary general expenses of the Center not covered by this appropriation]: \* \* \*

5 [Buildings and Facilities]

[For replacement of a granary building, equipment, and inventory at the Agricultural Research Center, including architectural and other costs in connection therewith, \$150,000.]

The first change in language deletes the words "the salary of the Administrator at \$10,330 per annum, and". Retention of this authority in the appropriation language is no longer necessary as the position will be allocated under the provisions of the Classification Act of 1949.

The second change in language provides authority for the purchase of one passenger motor vehicle for the use of the Agricultural Research Administrator and members of his staff in the conduct of official business. There is frequent need for transportation to various departments and agencies of the Government in Washington in connection with the work of this office and to the Agricultural Research Center at Beltsville, Maryland in connection with supervision of both the research and service activities of the Center. It is also necessary from time to time that official visitors be taken on short notice to the Center. Common carrier service is inconvenient and sometimes unavailable for these purposes, and the use of personally-owned cars is not a satisfactory solution. The need can best be met by the proposed purchase. A station wagon, 1940 model, previously assigned to the Agricultural Research Center will be traded in to provide for this replacement.



The third change in language authorizes the use of not to exceed \$5,000 for increasing the capacity of the Solvents Storage Building presently in use at the Agricultural Research Center to store inflammable liquids such as alchhol, ether, and other solvents used by research bureaus in laboratory work. This building does not contain sufficient space to provide for storage of these liquids in accordance with Federal Fire Regulations. It is proposed to enlarge the present building and extend the present automatic sprinkler system.

The fourth change eliminates provisions relating to reimbursable construction, alteration, and repair performed by the Agricultural Research Center, and maintenance of stores, authority for which would no longer be necessary because of the provision in the estimates for a working capital fund to finance reimbursable operations of the Agricultural Research Center.

The fifth change is for the purpose of eliminating the language included in the Second Supplemental Appropriation Act, 1950, providing a non-recurring item of \$150,000 for replacement of a granary building, equipment, and feed inventory destroyed by fire at the Agricultural Research Center.

## STATUS OF PROGRAM

A. Administration and Over-all Direction of the Agricultural Research Administration:

The Administrator is concerned with:

1. Planning, coordinating, and directing the scientific research program and the control and regulatory programs of the Agricultural Research Administration (comprised of the Bureaus of Animal Industry, Dairy Industry; Plant Industry, Soils, and Agricultural Engineering; Entomology and Plant Quarantine; Agricultural and Industrial Chemistry; Human Nutrition and Home Economics; and the Office of Experiment Stations) to insure the most effective utilization of personnel and facilities.
2. Administering the Research and Marketing Act of 1946. This function was assigned to the Administrator by Secretary's Memorandum No. 1237, dated July 29, 1949.
3. Coordinating all research activities (other than economic research) of the various agencies of the Department.
4. Exercising over-all direction, through the Office of Experiment Stations of the program of Federal grants for research at State agricultural experiment stations. To facilitate this program and to coordinate Federal and State research programs, the Chief of the Office of Experiment Stations serves as an Assistant Research Administrator.
5. Developing, in cooperation with bureau chiefs and Directors of State and Territorial Agricultural Experiment Stations, an integrated research program which, in the light of research conducted by other public agencies and private industry, will best meet the changing needs of agriculture and the Nation's requirements for food, feed and fiber.
6. Advising the Secretary and other agencies of the Department regarding research plans and programs and developing research to meet the needs of other Department programs.

The Office of Administrator exercises general supervision over the total program of the Administration, and this involves coordination of a wide range of technical research activities of the bureaus of the Department of Agriculture as well as over-all coordination of budgetary, fiscal and other administrative activities of the bureaus constituting the Agricultural Research Administration. The members of the staff consider and make decisions concerning each proposed individual research project, each project estimate, and each proposed memorandum of understanding covering cooperative research between bureaus coordinated by the Administration, with other agencies of the Federal Government, and with

various States and private organizations. In addition, each line project (about 3,000 in all) is re-examined at least every five years with reference to objective, progress, and relative importance. During 1949, new line projects requiring examination and coordination totalled 234, 95 active projects were extended and 156 were discontinued. These examinations eliminate duplication, provide for a balanced agricultural research program, and develop beneficial research relationships. During the fiscal year 1949, 169 work projects and 33 financial projects were processed and approved.

A research panel on the toxicology of insecticides, fungicides, herbicides, etc., has been set up by the Administrator's Office. This group is reviewing the research now underway in this field in the Department and State agricultural experiment stations and will prepare a research program to take care of the future needs in this field. This is typical of panels set up from time to time as needs require.

From July 30, 1947, to June 30, 1949, the Administrator's office was responsible for the administration of the Alaska Experiment Station as well as the Federal research program on agricultural problems of Alaska. The agricultural experiment stations in Alaska have been reorganized and direct jurisdiction returned to the Territory. The Station's experimental work and the Federal research in Alaska will be carried out as a joint program.

The Office also serves as the clearing agency for the Department's research on strategic and critical agricultural materials for the Munitions Board.

The Administration is taking an active part in both the nutritional and the agricultural phases of the Food and Agriculture Organization program. The Administrator's Office has been represented at each FAO international conference, and has taken leadership in providing for bureau participation in various conferences of specialists carried out under FAO, including particularly those on world nutrition requirements and storage losses from insect damage to food products. During 1949, the Research Administrator served as a member of the inter-agency committee which develops U. S. recommendations as to FAO policies and opportunities. Currently the Research Administrator serves as Chairman of the FAO Standing Committee on Agriculture.

Members of the Administrator's staff serve on many important committees such as the Advisory Committee for Scientific Research of the Textile Foundation, the interdepartmental Advisory Committee on Scientific Personnel of the Civil Service Commission, the Department's Committee on Foreign Agricultural Policy, and the Food and Nutrition and the Agricultural Boards of the National Research Council.

The staff members of the Office of the Administrator serve as chairmen to approximately 20 working groups of departmental subject matter specialists and as executive secretaries to an equal number of advisory committees composed of representatives of research, producers, processors



and distributors interested in specific agricultural commodity or functional areas. Both of these groups collaborate and advise on the program formulation, policies, and means of implementation.

In order to implement and facilitate the effective coordination of the research, marketing, and statistical work of the Department, the Central Project Office has been established within the Office of the Administrator during the past year (as an RMA project) and the staff of this office is now engaged in abstracting and classifying all projects which constitute the research programs of the Department.

The Office of Administrator does not supervise in detail the management operations of the various Bureaus in the Agricultural Research Administration. It does, however, give over-all guidance in the fixing of administrative policies and procedures and in coordinating the operating practices in use by the various Bureaus in fields where this can be done to advantage. Progress has been made in this direction. For example, during the past year there has been a thorough review and revision of the procedures and documents used in cooperative agreements and memoranda of understanding with both public agencies and private co-operators. As a result, practices are now in effect which permit simple preparation and prompt clearance of papers of this sort, and which release in the aggregate, for use in more directly productive fields, many man-hours of time on the part of both research workers and administrative staff.

Similarly, there has been developed an abridged edition of the Department of Agriculture regulations for use in the field service of the Agricultural Research Administration. The full set of Department regulations, while important to large offices conducting detailed operations in various branches of administration, contains much material not needed by the head of a smaller station. The abridged copy preserves for the information and guidance of field offices the essential instructions governing the operation of their own work. These abridged regulations have proved extremely useful and have saved much time.

B. Supervision of Planting, Operation and Furnishing of Facilities and Services at the Agricultural Research Center:

The Agricultural Research Center at Beltsville, Maryland furnishes facilities and services to agencies conducting research at the Center as follows: upkeep of Center grounds; furnishing guards and 24 hour telephone service; operation of mail and messenger service; infirmary and emergency first aid service; fire protection; construction and maintenance of roads; operation of a sewage disposal plant and system; operation of water treatment plant; and performance of administrative services in connection therewith.

Direct services are furnished on a reimbursable basis to ten bureaus of the Department and several other government agencies conducting research and experimental work at the Center. These services include heat, electricity, gas and water; maintenance, construction and repair of structures and equipment; mechanical shop services;

engineering services; general farm work; and supplies as requested by the bureaus. Reimbursable work amounted to approximately \$1,707,000 during the fiscal year 1949.

The following figures for 1949 give a general idea of the size of the Center's operations:

Sewage treated .....	132,000,000 gallons
Water supplied .....	130,470,000 gallons
Electricity purchased and distributed .....	7,972,000 k.w.h.
Steam furnished for heating .....	55,000,000 pounds
Steam furnished to laboratories .....	14,500,000 pounds
Grains and concentrates mixed in accordance with experi- mental feeding formulas .....	4,390 tons
Coal purchased and delivered to heating plants .....	11,417 tons
Fuel oil purchased and delivered .....	320,131 gallons
Requests for mechanical shop services (ranging in cost from .2 to 106,702) .....	5,505
Acres on which farm and field work was performed for bureaus .....	2,500

AGRICULTURAL RESEARCH ADMINISTRATION  
OFFICE OF ADMINISTRATOR

Functional Summary of RMA Projects Carried Out Under Title II

Functional Classification	1949	1950 :(estimated)	Adjustments: for 1951, : (estimated) : P. L. 429 :	1951
MARKETING RESEARCH AND SERVICES	:	:	:	:
IV. Improvement in preparation and handling of farm products:	:	:	:	:
a. Development and improvement of grades and standards .....	:	:	:	:
	\$11,843:	\$24,500:	+\$200:	\$24,700
Over-all administration a/ .....	102,606:	90,900:	+1,200:	92,100
Total, Title II, RMA.....	114,449:	115,400:	+1,400:	116,800

a/ Includes, in 1949 and 1950, allotments to Office of Secretary and Office of Information for functions, the cost of which will be assumed by the Office of Administrator, Agricultural Research Administration.





STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS AND WORKING FUNDS  
(Amounts Shown Include Pay Adjustment Costs)

Item	Obligations, 1949	Estimated obligations, 1950	Estimated obligations, 1951
<u>Flood Control, Department of Agriculture</u> <u>(Office of Administrator, Agricultural</u> <u>Research Administration):</u>			
For assistance in the preparation of an agricultural plan for the Columbia Basin area .....	- -	- -	\$13,700
<u>Research and Marketing Act of 1946,</u> <u>Department of Agriculture (Office of</u> <u>Administrator, Agricultural Research</u> <u>Administration):</u>			
Over-all administration, planning, and coordination of research under the act of June 29, 1935, as amended ....	\$223,614:	\$261,100:	268,300
Inventory and analysis of research, marketing, and statistical projects .	26,541:	60,900:	61,500
Total, Research and Marketing Act ..	250,155:	322,000:	329,800
<u>Special Research Fund, Department of</u> <u>Agriculture (Office of Administrator,</u> <u>Agricultural Research Administration):</u>			
Laboratory for research into the relation of soils to plant, animal, and human nutrition .....	125,424:	133,400:	134,600
<u>Working Fund, Agriculture, General</u> <u>(Office of Administrator, Agricultural</u> <u>Research Administration):</u>			
For sponsoring, planning, and admin- istering training programs for German Nationals in the general field of agriculture .....	- -	500:	- -
<u>International Information and Education-</u> <u>al Activities (Transfer from State De-</u> <u>partment)(Office of Administrator,</u> <u>Agricultural Research Administration):</u>			
For assisting Latin and South American visitors and trainees interested in agricultural research .....	10,498:	11,000:	a/
TOTAL, OBLIGATIONS UNDER ALLOTMENTS AND WORKING FUNDS .....	386,077:	466,900:	478,100

a/ Allotments under this transfer have not been determined for the fiscal year 1951.





PASSENGER MOTOR VEHICLES

Replacements. The estimates contemplate the replacement of three vehicles at an estimated net cost of \$3,000.

One of the cars to be replaced was purchased in 1938, another was acquired in 1940. Based on present mileage, it is estimated that mileage of these vehicles at the time of trade-in will be 70,000 miles and 64,000 miles respectively. These vehicles are used by employees largely within the confines of the Agricultural Research Center in connection with operations in an area embracing approximately 11,700 acres.

The Research Administrator and members of his staff have not heretofore been assigned a car for use in the conduct of official business. There is frequent need for transportation to various departments and agencies of the Government in Washington in connection with the work of this office and to the Agricultural Research Center at Beltsville, Maryland, in connection with supervision of both the research and service activities of the Center. It is also necessary from time to time that official visitors be taken on short notice to the Center. Common carrier service is inconvenient and sometimes unavailable for these purposes, and the use of personally-owned cars is not a satisfactory solution. A station wagon, 1940 model, previously assigned to the Agricultural Research Center will be traded in to provide for this replacement.



WORKING CAPITAL FUND, AGRICULTURAL RESEARCH CENTER

Appropriation, 1950 .....	- -
Budget Estimate, 1951 .....	\$400,000
Increase .....	<u>+400,000</u>

INCREASE

The Budget estimate provides for the establishment of a nonexpendable working capital fund of \$400,000 (a non-recurring item for 1951) to facilitate the financing reimbursable operations at the Agricultural Research Center, Beltsville, Md.

Need for Working Capital Fund: In order to establish more economical and efficient financing of reimbursable operations at the Center, eliminate excessive accounting detail, and make possible the prompt payment of vendors' bills, a working fund is needed for the payment of necessary expenses pending receipt of reimbursements from the agencies served. Experience in the use of a similar fund provided in the 1944 appropriation act (for financing central duplicating, supply and motor transport services) demonstrates the value of this method of financing central reimbursable services.

Reimbursable obligations for services rendered and supplies furnished to bureaus at the Agricultural Research Center amount to approximately \$1,500,000 annually. This sum represents about 90% of the total obligations of the Center, the balance of the obligations being chargeable to a direct allotment from the appropriation "Salaries and expenses, Office of Administrator, Agricultural Research Administration." Under present procedure, in an attempt to provide operating cash until payments for reimbursable work are billed and received, the total allotment is requisitioned as soon as it becomes available, and at the beginning of the fiscal year those services which can be estimated on a reasonably accurate basis are billed to the bureaus in advance.

Advance billing requires a large amount of extra accounting records and is limited in its application. In order to utilize the present provision for receiving reimbursements "by advance credits or reimbursements based on estimated (or actual) charges", the Center must be able to furnish estimates by types of work in order that the bureaus will be able to determine the appropriation, sub-appropriation, working fund or project which should be charged with the expenditure. Over 60% of the services rendered cover special requests involving emergency work or work of a nature not anticipated by type, and about 10% is work for miscellaneous agencies outside the Department of Agriculture who request, at irregular intervals, services which the Center is equipped to furnish more cheaply and efficiently than commercial firms. This 70% is not billed in advance because its nature and type is not known. If an attempt were made to bill such items in advance, it would be necessary to make frequent adjustments between the funds of the Center and those of the agencies involved upon completion of work under individual service requests (about 3,500 annually), thereby greatly increasing the accounting work necessary.



Requests for service are accepted subject to availability of material required for the job. If a bureau should be billed in advance for such work upon receipt of the service request, and material did not become available until after the end of the fiscal year, or if for some other reason beyond the control of the Center the work could not be completed within the fiscal year, it would be necessary to return the funds for the uncompleted portion of the work prior to June 30. If the job was completed in the next fiscal year, it would then be necessary to again bill the bureau for reimbursement. This would materially increase the accounting work for both the Center and the Bureaus involved.

When the authority for advance billing is utilized, more accounting records are required to assure that bureaus are billed for work accomplished which is in excess of the amount billed in advance, and to determine, in those cases where the work accomplished is less than the amount billed in advance, the unused balance to be returned to bureaus for further obligation.

The present procedure does not provide sufficient cash for financing the obligations of the Center on a current basis. Since it is necessary to meet payrolls on the dates due, payment of vendors' bills is often unduly delayed, a situation which is not to the best interests of, nor does it reflect favorably upon, the Federal Government.

Because of the time required for completion of certain jobs and normal lapse of time required for billing and receipt of reimbursements, the Working Capital Fund should be provided in an amount of not less than \$400,000. Based on anticipated total activity of approximately \$1,500,000 annually, this amount would turn over about four times per year.

Plan of Work: Inasmuch as operating costs of these services will, in the final analysis, be borne by the agencies of the Department which will pay for the actual costs of services performed for them by the Center, the working capital fund proposed does not constitute an appropriation of money to be "spent"; rather it would be a cash fund from which the operating costs of the central services could be paid pending receipt of reimbursements from bureaus and agencies to which supplies, materials, or services are furnished. These reimbursements would be deposited to the working fund so that the integrity of the fund will be maintained, and the amount of the fund would be available at all times in the form of credits and cash. Thus, the working capital provided for under this proposal could be returned to the Treasury intact should the fund at some future time be abolished.

The Bureau of the Budget and the Congress will be apprised of the condition of the fund, as statements of current assets and current liabilities and of reimbursements and expenditures as of the close of the last completed fiscal year will be included in the annual budget.

LANGUAGE

The estimates include proposed language for this item as follows:

Working capital fund, Agricultural Research Center: For the establishment of a working capital fund, to be available without fiscal year limitation, for expenses necessary for furnishing facilities and services by the Agricultural Research Center to Government agencies, \$400,000. Said fund shall be reimbursed from applicable appropriations or other funds to cover the charges for such facilities and services, including handling and related charges, for equipment rentals (including depreciation, maintenance, and repairs), for supplies, equipment and materials, stores of which may be maintained at the Center, and for building construction, alterations, and repair, and applicable appropriations or other funds may also be charged their proportionate share of the necessary general expenses of the Center not covered by the annual appropriation.

The proposed language provides for the establishment of a working capital fund without fiscal year limitation for financing reimbursable expenditures of the Agricultural Research Center pending collection from appropriations and funds properly chargeable with such expenditures. The expenditure authorities proposed are identical with those applicable to the Center's operation in previous years under the appropriation item "Salaries and expenses, Office of Administrator, Agricultural Research Administration".





SPECIAL RESEARCH FUND, DEPARTMENT OF AGRICULTURE

Purpose Statement

The special research fund authorized by section 4, title I, of the Bankhead-Jones Act (approved June 29, 1935), provides for (a) the establishment and maintenance of research laboratories and facilities in major agricultural regions of the United States and the prosecution of research at such laboratories, (b) special research projects approved by the Secretary of Agriculture and conducted by such agencies of the Department of Agriculture as the Secretary may designate or establish, and (c) administration of payments to States, Hawaii, Alaska, and Puerto Rico pursuant to title I of the Bankhead-Jones Act.

Section 1 of the Bankhead-Jones Act as amended by the Research and Marketing Act of August 14, 1946, specifies that the work conducted under the special research fund shall be "research into laws and principles underlying basic problems of agriculture in its broadest aspects; research relating to the improvement of the quality of, and the development of new and improved methods of production of, distribution of, and new and extended uses and markets for, agricultural commodities and byproducts and manufacturers thereof; and research relating to the conservation, development, and use of land and water resources for agricultural purposes."

Nine regional laboratories have been established under the act to provide a joint Department and State experiment station attack on problems of regional and national scope. These regional laboratories, conducted with cooperation and participation of the State agricultural experiment stations in the respective regions, are:

1. Regional Vegetable Breeding Laboratory, Charleston, S. C.
2. Regional Pasture Research Laboratory, State College, Pa.
3. Regional Soybean Laboratory, Urbana, Ill.
4. Regional Swine Breeding Laboratory, Ames, Iowa.
5. Regional Sheep Breeding Laboratory, Dubois, Idaho.
6. Regional Animal Disease Laboratory, Auburn, Ala.
7. Regional Laboratory for Improvement of Viability in Poultry, East Lansing, Mich.
8. Regional Salinity Laboratory, Riverside, Calif.
9. Regional Laboratory for Research Into the Relation of Soils to Plant, Animal, and Human Nutrition, Ithaca, N. Y.

The solution of many problems which arise requires research of fundamental character in order that further progress may be made. Under the special research projects promising ideas are investigated on a small scale. If these yield favorable results, the Department then carries out with other funds the more applied research necessary to develop farm applications.

Title I of the Bankhead-Jones Act makes available not to exceed 2 percent of the special research fund for administration of the payments to States authorized by that Act.

	Estimated, 1950	Budget estimate, 1951
Appropriated funds	\$1,257,800	\$1,268,000

Appropriation Act, 1950 .....	\$1,236,000
Anticipated pay adjustment supplemental .....	21,800
Base for 1951 .....	1,257,800
Budget Estimate, 1951 .....	1,268,000
Increase (to place on a full-year basis in 1951, pay adjustments under Public Law 429 which were in effect for only a part of fiscal year 1950) .....	+10,200

# PROJECT STATEMENT

(Amounts shown include pay adjustment costs)

Project	1949	1950 (estimated)	Increase P.L. 429 adjustment	1951 (estimated)
1. Special research laboratories in major agricultural regions .....	\$883,918	\$890,000	+\$7,100	\$897,100
2. Special research projects..	364,495	342,800	+2,900	345,700
3. Administration of payments to States under Title I, Bankhead-Jones Act.....	25,283	25,000	+200	25,200
Total pay adjustment costs, Public Law 429 .....	[- -]	[21,800]	[+10,200]	[32,000]
Unobligated balance .....	6,304	- -	- -	- -
Total available .....	1,280,000	1,257,800	+10,200	1,268,000
Anticipated pay adjustment supplemental .....	- -	-21,800		
Total appropriation or estimate .....	1,280,000	1,236,000		

## CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

- 1 For enabling the Secretary to carry into effect sections 2, 3, 4, and 10d of the Act approved June 29, 1935, as amended (7 U.S.C.
- 2 [427, 427b, 427c, 427f, 427i] 427a, 427b, 427c, 427i (d); for administration of the provisions of section 5 of the said Act
- 3 (7 U.S.C. 427d), and for special research work, \* \* \* [, includ-
- 4 ing not to exceed \$9,000 for construction of a service building at the regional salinity laboratory, Riverside, California].

The first three changes in language are for the sole purpose of clarifying the specific activities for which the Special Research Fund is available by enumerating the appropriate sections of the Act of June 29, 1935, as amended.

The fourth change in language deletes the non-recurring provision included in the 1950 Agricultural Appropriation Act for the construction of a service building at the Regional Salinity Laboratory, Riverside, California.

STATUS OF PROGRAM

Pursuant to the Bankhead-Jones Act, approved June 29, 1935 (Sec. 4, Title I) the Special Research Fund is available for:

- (a) the establishment and maintenance of research laboratories and facilities in major agricultural regions of the United States and the prosecution of research at such laboratories;
- (b) special research projects approved by the Secretary of Agriculture and conducted by such agencies of the Department of Agriculture as the Secretary may designate or establish; and
- (c) administration of provisions of the Act authorizing payments to States, Hawaii, Alaska, and Puerto Rico for research to be conducted by agricultural experiment stations.

The Bankhead-Jones Act as amended by the Research and Marketing Act of 1946 (Sec. 10(d), Title I), specifies that the work conducted under the Special Research Fund shall be "research into laws and principles underlying basic problems of agriculture in its broadest aspects; research relating to the improvement of the quality of, and the development of new and improved methods of production of, distribution of, and new and extended uses and markets for, agricultural commodities and by-products and manufactures thereof; and research relating to the conservation, development, and use of land and water resources for agricultural purposes."

Special Research Laboratories in Major Agricultural Regions:

Nine regional laboratories provide a joint Department and State experiment station attack on problems of regional or national scope. These regional laboratories, established and conducted in each case with the cooperation and participation of the State agricultural experiment stations in the respective regions; serve as focal centers for regional coordination and cooperation. The work of the laboratories is centered especially upon research which would be difficult or impossible for an individual State or a group of States to undertake.



The allotments made to Special Research Fund Regional Laboratories for the fiscal year 1949 and the estimated allotments for the fiscal years 1950 and 1951, are as follows:

Laboratory	Location	Allotment, 1949	Estimated Allotment, 1950	Estimated Allotment, 1951
1. Regional Vegetable : Breeding Laboratory:	Charleston, S. C.	93,500	84,000	84,500
2. Regional Pasture : Research Laboratory:	State College, Pa.	73,400	75,500	76,100
3. Regional Soybean : Laboratory .....	Urbana, Illinois	110,600	105,900	106,600
4. Regional Swine : Breeding Laboratory:	Ames, Iowa	67,200	78,200	78,400
5. Regional Sheep : Breeding Laboratory:	Dubois, Idaho	69,800	74,900	75,500
6. Regional Animal : Disease Laboratory :	Auburn, Ala.	80,100	78,500	79,200
7. Regional Laboratory:East Lansing, for Improvement of : Michigan Viability in : Poultry .....		152,600	135,400	136,700
8. Regional Salinity :Riverside, Laboratory .....	California	112,500	124,200	125,500
9. Laboratory for : Research into the : Relation of Soils, : to Plant, Animal and : Human Nutrition ...	Ithaca, N. Y.	125,500	133,400	134,600
Total available ....		885,200	890,000 <sup>a/</sup>	897,100 <sup>b/</sup>

a/ Includes \$14,800 total pay adjustment costs, Public Law 429.

b/ Includes \$21,900 total pay adjustment costs, Public Law 429.

General Objectives and Examples of Progress: A statement of the general objective and a brief description of selected activities of each of the laboratories during the fiscal year 1949 are set forth below:

Regional Vegetable Breeding Laboratory, located at Charleston, South Carolina.

General Objective: To obtain through fundamental research basic information prerequisite to efficient and orderly breeding of improved vegetables for the southeastern region; and to produce through selection and breeding, new and improved vegetable varieties and breeding stocks; and to correlate this research as far as possible with State research.

1. Peas. A new variety developed by the Laboratory, which ranked first in the Southern Cooperative Pea Variety Trials of 1948, has been released this year to seedsmen for increase prior to introduction as a variety. Definite progress is being made in developing cold-resistant and heat-tolerant pea types and incorporating into them all of the desirable horticultural qualities required for market garden pea types.
2. Watermelon. Preparations have been made for releasing to growers an anthracnose-resistant, shipping-type watermelon. It has been shown that some characteristics of the flesh are resistant to breakage in watermelons, which is responsible for rather heavy losses.
3. Tomato. The new tomato variety Southland was released during the year and 4,000 lbs of seed were produced by commercial seedsmen. This variety is resistant to collar rot, nearly immune to fusarium wilt, and moderately resistant to early blight and one form of late blight. It appears to be a good canning type, and adapted for home and market use.
4. Sweet Corn. The sweet corn hybrids developed by the Laboratory possess considerable resistance to ear worm and are about equal to commercial varieties in taste, but are still inferior in appearance and yield.

Regional Pasture Research Laboratory, located at State College, Pennsylvania.

General Objective: To obtain through basic research facts and material applicable in pasture improvement throughout the Northeastern States; to relate this research to and coordinate it with other research in this region conducted by various State agricultural experiment stations.

1. A destructive disease of white clover caused by Sclerotinia trifoliorum is suspected as being an important factor in winter injury. The fungus did not attack the host plant when maintained at 80°F but would attack it at a lower temperature, even as low as 32°F. It was discovered that strains of the fungus differed in virulence.
2. Winter injury of Ladino clover was severe during the winter of 1947-48. Survival and vigor differences were highly significant among 103 clones of the plant in one block. This observation suggests that substantial progress can be made in preventing loss of stands of Ladino clover by breeding winter hardy strains and work along this line has been undertaken.
3. Milk production on orchard grass-Ladino clover pastures was lower in 1948 than in previous years. Part of this loss could be attributed to the destruction of Ladino clover during the previous winter. As the grazing season progressed marked symptoms of nitrogen deficiency were apparent in the orchard grass emphasizing the desirability of a combination of legumes with grasses. By the end of the season, re-establishment of Ladino clover by natural seeding had occurred to

some extent on all the paddocks but was best on those managed to provide early spring grazing. This phase of the work was conducted in cooperation with the Pennsylvania Agricultural Experiment Station.

Regional Soybean Laboratory, located at Urbana, Illinois

General Objective: To obtain through fundamental research basic information prerequisite to efficient and orderly breeding of improved soybean varieties; to produce through breeding and selection improved varieties and strains of soybeans for industrial utilization; to develop varieties of soybeans resistant to disease; and to correlate this research with the work of the State agricultural experiment stations in the region.

1. Wabash, a new variety of soybean, developed in cooperation with a number of State Experiment Stations, has been released. The variety, from a cross between Dunfield and Mansoy, combines high yield, high oil content, good standing ability, desirable height and good seed quality. The variety is especially adapted to Southern Indiana, Southern Illinois, Central Missouri and South-eastern Kansas. A six-year average, involving 73 tests in 8 states, shows Wabash one bushel higher in yield than Chief, two bushels higher than Potoka, and three bushels higher than Gibson, the leading varieties in its maturity class. Over 9,000 bushels are available for planting this year and ample supplies will be available in 1950.
2. Adams, another new variety is being released for production in the North Central States. This variety matures at the same time as Lincoln but has a slightly higher oil content. Adams outyields Lincoln in the northern area of adaptation. Because of differences in parentage, this new variety may be valuable in the event Lincoln should become susceptible to new plant disease.
3. Brown stem rot disease continues to rank as the most serious and destructive disease in the northern states. A total of 1,450 introductions and varieties of soybeans were grown on brown stem rot infested soil in a search for resistance. Approximately 50 of the introductions showed some slight resistance. Controlled environment studies showed that drought and high temperature, following a cool period favorable for disease development, are important factors in the production of typical leaf symptoms of the disease.

Regional Swine Breeding Laboratory, located at Ames, Iowa.

General Objective: To improve swine through the application of breeding methods.

1. Physiological studies have been undertaken in an effort to clarify some of the results being obtained with various inbred lines. While results are incomplete, it appears that inbreeding retards the



rate of physiological maturity. There are indications that breeding performance of inbred boars generally improves between 6 and 10 months of age. Major factors affecting size of litter appear to be ovulation rate and genetic ability of the fertilized ova to survive through gestation. Comparisons have been made of farrowing records, weaning weights, and five-months weights of more than 800 litters on 50 farms where inbred Poland China, Landrace or purebred boars were used. The average difference observed, 2 percent in viability and 1 pound in five-month weights, in favor of pigs by inbred Poland China boars over those sired by purebred boars is not significant statistically or economically. The average superiority of pigs by Landrace boars over those of purebred boars was 3.5 percent in viability and 12 pounds in five-month weights. These results reflect the genetic diversity between the Landrace boars and sows of standard breeds.

2. Maximum performance in swine will probably be obtained more rapidly and with more certainty through mating systems which maintain maximum heterozygosity. The use of inbred lines within breeds should be helpful in utilizing and controlling heterosis (admixture of unlike genetic factors) in production of breeding stock, particularly boars.

Regional Sheep Breeding Laboratory, located at Dubois, Idaho

General Objective: To develop sheep for western ranges superior in hardiness, yield and quality of wool and lambs produced.

1. The wool production at yearling age of covered-faced ewes excelled that of open-faced ewes by .09 pounds of grease wool and .05 pounds of clean wool. These differences were not significant. However, covered-faced ewes had greater staple length by .6 centimeters than did open-faced ewes, a difference that is significant. In general covered-faced ewes produced .2 pound heavier grease fleece weights throughout their lifetime than open-faced ewes. However, all of the disadvantages of the open-faced ewes in wool production are more than offset by their greater lamb production.
2. Methods of selecting ewes for high lamb production have been developed for the first time. This information is particularly pertinent because declining sheep number increase the importance of lamb production. Ewes having single lambs weaned a higher proportion of their lambs than those having twins. The single lambs weighed more at weaning. The percentage of ewes having lambs, percent of twins born, percent of live lambs born, percent of lambs and pounds of lamb weaned per ewe bred increased with age up to six years old. Ewes born as twins produced 6-8 percent more twins than those born as singles. This difference together with a consideration of the age of the dam provides a basis for rating lambs at birth, weanling, or yearling age on their potential twin production. Ewes that did not have a lamb in their first breeding year had the lowest lamb production in later years, averaging about 8 pounds of

lamb per ewe year below average. Those that did not wean a lamb but had one dead lamb or one live lamb born averaged about 7 pounds and 3 pounds below average, respectively. Those ewes that had one lamb born dead and weaned a foster lamb were about average in later lamb production. Those ewes having and weaning one lamb were about 2 pounds above average. The ewes having two lambs the first year produced 16 pounds of lamb per ewe year above average.

Regional Animal Disease Laboratory, located at Auburn, Alabama.

General Objective: To develop methods of controlling certain diseases and parasites for which practical measures have not been devised.

1. The worm parasite Strongyloides papillosus was shown to be definitely harmful to calves exposed to over 200,000 larvae. The most characteristic symptoms were intermittent diarrhea, in some cases mucoid and bleeding; loss of appetite; loss of condition, and retardation of growth. Calves would become infected experimentally by application of larvae to the skin or by drenching. The number of worms established was considerably higher in calves exposed to infection by skin. This parasite has heretofore been thought to be relatively harmless.
2. Sulfaquinolone was demonstrated to have definite value in prevention of clinical coccidiosis in dairy calves.
3. A portable pen for raising disease-free dairy calves, developed by the Laboratory, is being used by the State Extension Dairymen of Alabama to show how to prevent the spread of white scours, pneumonia and other diseases in calves.
4. An immunizing product against Johne's disease is being studied. Findings indicate that a partial immunity is produced but not a solid immunity. Vaccination, however, may cause an animal to give a false reaction to the tuberculin test, which would seriously handicap the national eradication program.

Regional Laboratory for Improvement of Viability in Poultry, located at East Lansing, Michigan.

General Objective: To determine the causative agent or agents responsible for lymphomatosis, to develop control procedures based on pathology, genetics, management, and nutrition, and to discover prophylactic techniques for prevention and control. This disease is one of the most serious diseases affecting poultry, and causes large annual losses.

1. A filtrable agent found in tumor tissue and the blood of chickens with visceral lymphomatosis induces the disease in exposed chickens. It has also been proved that the disease may be transmitted from dam to offspring through the hatching egg.

2. Breeding for resistance and susceptibility to lymphomatosis has resulted in the development of two resistant lines that consistently have shown an incidence of about 10 percent mortality. On the other hand four susceptible lines have had more than 30 percent incidence. One of the susceptible lines shows a ratio of three neural to one visceral case of lymphomatosis whereas in the remaining lines there is a ratio of seven visceral to two neural cases of the disease.

Natural transmission studies have indicated that the earlier in life relatively free chickens are exposed to lymphomatosis, the greater will be the number showing the disease. It has also been shown that the agent responsible for naturally occurring lymphomatosis may be present in the incubator at hatching time and, when present, can be transmitted readily from infected to non-infected chickens during this period.

Regional Salinity Laboratory, located at Riverside, California.

General Objective: To obtain through basic research information with respect to (1) the reactions of crop plants and the soil to the several salt constituents at various concentrations in both artificial and natural solutions; (2) the deleterious symptoms of crop plants resulting from these various salt constituents; (3) the amount of water which should be applied to soils to avoid harmful salt concentrations (4) the trend of salinity conditions in several areas where such problems exist; and (5) the practical application of the laboratory findings on the reaction of crop plants under known and controlled field conditions.

1. Improving alkali soils. In a study covering a two-year period on the Owyhee Irrigation Project in Washington, undertaken in cooperation with the Bureau of Reclamation and a number of State experiment stations, and others, it was found that applications of manure and gypsum increased infiltration rates approximately eightfold. However, applications of manure plus lime, and of manure plus gypsum increased the rates approximately fourteen-fold.
2. Salt tolerance of truck crops. At the salt level usually considered to be the dividing line between non-saline and saline soils, the yield of lettuce was reduced 41 percent, cantaloupe 46 percent, and green beans 58 percent. On the other hand the yield of tomatoes was reduced only about 20 percent. The quality of these crops was only slightly affected, except that saline conditions greatly reduced the size of fruit and plant.
3. Effect of water table. Evidence indicates that a high water table tends to make plants more sensitive to the salt in the soil. Tomato plants were grown in soil without a water table and with water tables at 14 and 28 inches below the surface. The plants were irrigated with water of low, medium and high salinity. In the absence of a water table, increasing the salt content of the irrigation water from 400 to 4,000 parts per million caused a 70 percent



decrease in yield, mostly as a decrease in size of fruit. Raising the level of the water table in non-saline soil also caused a marked decrease in yield, although this effect was not apparent during the early part of the producing season. A combination of high water table and highly saline irrigation caused the early death of plants, whereas the plants survived in the presence of either factor alone.

U. S. Plant, Soil and Nutrition Laboratory, located at Ithaca, New York.

General Objective: To obtain through basic research facts regarding the effects upon plant nutrition of various mineral elements and growth factors in the soil and, through plants used as food, the effect of these elements and factors on animal and human nutrition.

1. Minor elements in forages. In cooperation with the North Carolina Experiment Station, samples of important forages were taken at selected locations throughout the Coastal Plain and on the adjacent portion of the Piedmont Plateau. Analysis of these plants showed that in general the iron, manganese, copper, and phosphorus content increased from east to west as the elevation age of the coastal plain soil increased. The manganese content reached a maximum in the sand hill district of the southwestern portion of the Coastal plain. Iron in the forages decreased from north to south. Cobalt was generally low throughout the whole area, although wide fluctuations within small areas were observed. Copper was very low in the eastern portion, as represented in the two lowest marine terraces.
2. Interrelationships of minor elements. Using rats as experimental animals, a study was made of the interrelationship of certain of the minor elements. It was found that molybdenum retarded growth of the rats. Copper fed at the level set for the experiment did not correct this effect. Copper, zinc or lead, either alone or in any possible combination, had no effect on growth. However, zinc plus molybdenum retarded growth beyond that observed for molybdenum alone, demonstrating an interaction between molybdenum and zinc. Blood studies of the experimental animals showed that no anemia occurred except when zinc was present in the diet. Copper corrected the "zinc anemia." Molybdenum caused no reduction in hemoglobin level.
3. Organic matter content of the soil. Preliminary results of experiments on the effect of chemical fertilizers versus composts and manures on food quality of plants indicate that while small differences in vitamin content may be included by a compost, the differences may be only a reflection of differences in rate of growth and maturity. In addition, the differences so far observed have been so small as to be of little practical significance nutritionally.

### Special Research Projects:

During the fourteen years that the Special Research Fund has been available, 118 separate research projects have been undertaken and 104, constituting 88 percent, have been terminated. Of these, 43 were relatively short-time studies designed to provide information for immediate needs. Of the other 61 projects, 16 were terminated in 3 years, 10 in 4 years, 5 in 5 years, 8 in 6 years, 4 in 7 years, 6 in 8 years, 5 in 9 years, 2 in 10 years, 1 in 11 years, 3 in 12 years, and 1 in 14 years. Twelve projects were terminated in 1949. A total of 14 projects, involving 7 bureaus, are now under way.

The majority of these projects are concerned with fields of work basic to agriculture in its broadest aspects. As the work progresses and the needs vary, changes in emphasis are made from year to year. With the completion of one phase of the problem, the attack may be directed to another phase requiring solution.

Progress on Selected Projects: Some of the results accomplished are enumerated below:

1. Vitamin B<sub>12</sub>. An unidentified growth-promoting nutrient (X) that has been demonstrated to exist in liver extracts was compared with the crystalline B<sub>12</sub>, a newly identified vitamin. Rats were fed rations known to be deficient in X but containing 24, 45, and 65 percent protein. Growth on these rations, without supplements, was 44, 22, and 4 grams respectively. When the rations were supplemented with the liver extract in one case and with B<sub>12</sub> in the other, the rates of growth were increased and at the same rate for both products. Since it is evident that the X factor and B<sub>12</sub> are identical, it can be stated, on the basis of previous work, that cereal grains and flours and the oil meals are deficient in B<sub>12</sub> and that milk and certain milk products are sources of the vitamin.
2. The Value of the Breakfast Meal. In a study to determine whether or not the composition of the breakfast meal affects the work efficiency of humans, it was found that the ingestion of any breakfast meal did not depress blood sugar levels. When breakfast was omitted, however, the fall in blood sugar below the fasting level was accompanied by symptoms of hunger, weakness, fatigue, lassitude and headache in all of the subjects. Furthermore, the individuals reported a predisposition to the same symptoms even though they had eaten an adequate lunch. The results of the study also indicate an advantage in a breakfast meal containing 22 to 25 grams of protein of animal origin for moderately active individuals.
3. Plant Growth Regulators. The petals of ornamental trees and shrubs soon fade and drop off after full bloom, thus shortening the period of effective display of color. In cooperation with the Department of the Interior, a number of species of flowering trees and shrubs were sprayed with aqueous sprays containing a wetting agent in mixture with 10 to 40 parts per million of either

A-naphtalenoacetic acid, B-naphthoxyacetic acid, or parachlorophenoxyacetic acid. These sprays retarded the petal fall of flowering cherries for 7 to 10 days beyond the shedding date for unsprayed branches. Flowering dogwood bloom lasted 3 or 4 days longer when similarly treated. Apple, azalea, lilac, mock-orange, flowering quince, and almond were not affected.

Aqueous sprays of 2,4,5-trichlorophenoxyacetic acid applied early in the season to Rome Beauty apples caused the fruit to develop full color and mature approximately one month ahead of the normal time. Similar 2,4,5-T spray applied late in the season to York Imperial apples caused a definite retarding effect on the pre-harvest drop of this variety.

4. Mechanical Cleaning of Cotton. Practical flow-through lint cleaners were developed at the U. S. Cotton Ginning Laboratory, Stoneville, Mississippi, and installed in a 3-stand commercial type gin. These cleaners were relatively simple in construction and operation. Cotton harvested by different methods and throughout the season was run through the cleaners. It was found that the cleaners provided consistent and significant grade improvements on all cottons without injuring fiber and spinning quality of the lint, thereby increasing market values. On machine-picked cottons (usually containing excessive amounts of trash and lint) an average improvement of two-thirds of a grade was realized with lint cleaners as compared to corresponding tests without lint cleaners. Even on hand-picked cottons grade improvement was from one-third to two-thirds grade.
5. Improving Tuberculin. In an effort to improve the potency and specificity of tuberculin, the diagnostic agent used in determining whether cattle are infected with tuberculosis, the unconcentrated culture filtrate of human tubercle bacilli was fractionated with hydrochloric acid. The resulting protein fractions proved to have four times greater potency and about nine times greater specificity than regular tuberculin. It also seems probable that a reliable criterion of the potency and specificity of tuberculin-specific antigens may be developed using skin reactions in guinea pigs. The latter development, if successful, will materially assist in the progress of improving this diagnostic agent.
6. Physiological Responses to Light. Preliminary results indicate that goats, both Toggenburgs and common, respond to controlled lighting conditions. Does under six hours of light preceded by 18 hours of darkness per day for about a 10-week period came into heat as long as the shortened day was continued. On the other hand, does under normal seasonal lighting came into heat in the fall months and were relatively quiescent the remainder of the year. These findings may have practical application in extending the season of milk production of goats.
7. Effect of High Pressures on Agricultural Products. In this study it has been demonstrated that proteins, otherwise very similar, do



not behave alike under pressure. This observation presents the possibility of developing methods to destroy one protein and leave another. If successful this principle might be adapted to the purification of proteins used in medicines, both animal and human, where the usual impurities are proteins, some of which are often harmful.

Administration of Payments to States under Title I, Bankhead-Jones Act. Title I of the Bankhead-Jones Act of June 29, 1935, makes available not to exceed two per cent of the Special Research Fund for administration of the payments to States authorized by the Act in accordance with established procedures for administration of such payments. The type of work done is given under the subappropriation for administration of grants to States, Office of Experiment Stations.

Special Research Fund Authorization and Appropriations

Fiscal Year	Appropriated				Total	Total Authorized
	Regional Laboratories	Special Research Projects	Adminis- tration of Bankhead- Jones Pay- ments to States			
1936	\$200,000	\$192,000	\$8,000	\$400,000	\$400,000	
1937	400,000	304,000	16,000	800,000	800,000	
1938	600,000	576,000	24,000	1,200,000	1,200,000	
1939	700,000	672,000	28,000	1,400,000	1,600,000	
1940	700,000	672,000	28,000	1,400,000	2,000,000	
1941	700,000	672,000	28,000	1,400,000	2,000,000	
1942	701,528	680,003	24,739	1,206,300	2,000,000	
1943	700,000	627,000	23,000	1,150,000	2,000,000	
1944	733,100	656,045	22,941	1,212,086	2,000,000	
1945	742,315	661,103	22,941	1,226,364	2,000,000	
1946	732,177	651,832	23,991	1,208,000	2,000,000	
1947	782,845	686,621	25,900	1,295,366	2,000,000	
1948	785,200	693,800	24,000	1,203,000	2,000,000	
1949	885,200	669,500	25,300	1,280,000	2,000,000	
1950*	890,000	642,800	25,000	1,257,800 <sup>1/</sup>	2,000,000	
1951*	897,100	645,700	25,200	1,268,000 <sup>2/</sup>	2,000,000	

\* Estimated

<sup>1/</sup> Includes \$21,000 total pay adjustment costs, Public Law 429.

<sup>2/</sup> Includes \$32,000 total pay adjustment costs, Public Law 429.



PASSENGER MOTOR VEHICLES

Replacement. The 1951 estimates contemplate the replacement of one vehicle at an estimated net cost of \$1,000. The car to be replaced was purchased in 1940, and based on present mileage, will have traveled approximately 65,000 miles at the time of trade-in.

Cars operated under the Special Research Fund are used only for essential research activities in areas where other means of transportation are inadequate or nonexistent. In some instances where common carrier travel is not suited to the work, employees are reimbursed at a rate not exceeding seven cents per mile for the use of personally-owned automobiles. Travel of this sort, however, is a very small portion of the total.





RESEARCH ON STRATEGIC AND CRITICAL AGRICULTURAL MATERIALS

Purpose Statement

The Strategic and Critical Materials Stock Piling Act of July 23, 1946, in section 7(b), authorizes and directs the Department of Agriculture to make scientific, technologic, and economic investigations of the feasibility of developing domestic sources of supplies of any agricultural material or substitutes for such materials determined by the Munitions Board to be strategic and critical. This appropriation is for the purpose of enabling the Department to carry out its responsibilities under the Act.

This program is administered by the Agricultural Research Administration. Funds are allotted to those research agencies of the Department which are best equipped to carry out the investigations required.

Investigations are at present being conducted on rubber, tannin, vegetable oils, and materials for cordage.

	Estimated, 1950	Budget, estimate, 1951
Appropriated funds	\$354,800	\$515,500





Appropriation Act, 1950 .....	\$349,000
Anticipated pay adjustment supplemental .....	5,800
Base for 1951 .....	<u>354,800</u>
Budget Estimate, 1951 .....	515,500
Increase .....	<u>+160,700</u>

SUMMARY OF INCREASES AND DECREASES, 1951

For acquisition and installation of pilot plant equipment at Eastern Regional Research Laboratory to conduct studies on large-scale extraction of tannin (non-recurring) .....	+150,000
For studies on hemp production and hemp seed storage .....	+25,000
To place on a full-year basis in 1951 pay adjustments under Public Law 429 which were in effect for only part of fiscal year 1950 .....	+2,500
Decrease to eliminate work under this appropriation on the storage of vegetable oils .....	-16,800

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950 (estimated)	Increase or decrease		1951 (estimated)
			P.L. 429 adjustment	Other	
1. Research on domestic production of natural rubber	\$351,383	\$212,000	+\$1,500	- -	\$213,500
2. Investigations of domestic production of vegetable tannins .....	- -	40,800	+300	+\$150,000(1)	191,100
3. Investigations on vegetable oils .....	- -	50,900	+200	-16,800(2)	34,300
4. Investigations on hard fiber plants for cordage .....	- -	51,100	+500	+25,000(3)	76,600
Total pay adjustment costs, Public Law 429	- -	[5,800]	[+2,500]	[+300]	[8,600]
Unobligated balance .....	10,317	- -	- -	- -	- -
Total available	361,700	354,800	+2,500(4)	+158,200	515,500
Anticipated pay adjustment supplemental	- -	-5,800			
Total appropriation or estimate .....	361,700	349,000			

INCREASES AND DECREASES

The net increase of \$160,700 in this item for 1951 is composed of the following:

(1) Increase of \$150,000 under the project "Investigations of domestic production of vegetable tannins" for acquisition and installation of pilot plant equipment at the Eastern Regional Research Laboratory to conduct studies on large-scale extraction of tannin. (Bureau of Agricultural and Industrial Chemistry)

Need for Increase: Vegetable tannins are derived from barks, woods, leaves, roots and fruits of plants. They are essential for the production of leather which is one of the most critical war materials as well as an essential in civilian life. The average annual consumption of vegetable tannins is about 200 million pounds, of which more than 2/3 is imported. Chestnut wood represents the principal domestic source (over 90% of the total) of vegetable tannin and since practically all commercial stands of this tree have been killed by blight there is no prospect of any future substantial or sustained increase in tannin production from this source. We are thus becoming increasingly dependent on foreign sources for our tannin supplies and in the interest of our national welfare it is highly important that steps be taken to expedite the development of new domestic sources of tannin. A planned program of research on the development of tanning materials has been in operation in the Department of Agriculture for several years. In this program principal attention has been devoted to canaigre and sumac as tannin crops. Canaigre, a perennial native of the Southwestern States, produces a root containing 20 to 25 percent of tannin suitable for making heavy leather, although extraction of the tannin content cannot be done by conventional methods. Progress has been made in devising workable laboratory methods and pilot plant facilities are now needed to conduct studies on large-scale extraction of tannin.

Plan of Work: The increase would be used to acquire and install necessary equipment (\$120,000) for a pilot plant at the Eastern Regional Research Laboratory, and to make necessary building alterations (\$30,000), in order to provide facilities for carrying out chemical engineering investigations on the large-scale extraction of tannin from canaigre and other sources of tannins by the newly developed method that has been worked out on a laboratory scale.

(2) Decrease of \$16,800 under the project "Investigations on vegetable oils" to eliminate work under this appropriation on storage of imported vegetable oils

Basis for decrease: The Department has been informed by the Munitions Board of the Department of Defense that it is prepared in the future to absorb the cost of this work under its own research funds since it is already engaged in investigations for the protection of imported stock-pile materials from deterioration.



(3) Increase of \$25,000 under the project "Investigations on hard fiber plants for cordage" for studies on hemp production and hemp seed storage. (Bureau of Plant Industry, Soils, and Agricultural Engineering)

Objective: To investigate (a) optimum storage conditions which will maintain the viability of hemp seed for 5 years or longer in order to make possible the stockpiling of seed at less cost; (b) the possibilities of growing hemp of suitable quality in less fertile areas not so competitive with important foods crops; and (c) water retting practices which will produce a higher quality hemp fiber than can be obtained by usual dew-retting methods.

Need for Increase: In both World Wars, rapid expansion of hemp production in the United States was necessary to provide a supplemental source of cordage fiber. The following table shows the hemp production in the United States for several recent crop years and indicates the expansion in such production which was required during the Second World War.

<u>Crop Year</u>	<u>Acreage Planted for Seed</u>	<u>Acreage Planted for Fiber</u>
1939	200	1,500
1940	500	1,950
1941	1,100	7,500
1942	36,000	15,080
1943	57,220	176,415
1944	200	71,431
1945	800	7,315
1946	500	5,300
1947	400*	5,846
1948	400*	2,960
1949	400*	4,465

\*Estimated

Normally in peace time only a small nucleus industry exists and there are inadequate seed supplies available for quickly expanding production. Although the United States entered war in 1941, the peak of hemp production was not reached until 1943. A sufficient stockpile of viable seed should be available for immediate expansion of production in the event of some future emergency. However, at present, hemp seed under usual methods of storage will not give satisfactory stands after more than two years. Investigations are needed to determine the optimum storage conditions so as to permit stockpiling of viable seed at the least cost. From limited tests which have been made, it is believed that under favorable storage, the seed may be able to retain its viability for five years or more.

During past emergencies the expansion of hemp production has been on the highly productive soils of the Corn Belt. This has not been desirable because (1) it has reduced the acreage available for growing important



food crops and (2) the fertile soils have caused the hemp to grow tall and produce a coarse, poor quality fiber. Experimental studies are needed to determine if better quality hemp with possibly lower but more profitable yields could be produced on less fertile soils not so competitive with food crops. Studies are needed also to determine water-retting practices which will produce a higher quality fiber than has been obtained in the past by the dew-retting methods. Water retting is used in other countries but has not been studied in this country to determine the best practices applicable to our conditions.

Plan of Work: The investigations will be conducted in the field in the Mid-West and Southwest and in the seed storage laboratory at Beltsville, Maryland. Solution of the seed storage problem will be sought by:

- (a) Studying harvesting methods in relation to original seed quality since it is very important to start with seed of high vigor to insure long life;
- (b) Investigating seed moisture content at harvest and rate of seed drying by various methods after harvest;
- (c) Studying the effect of storage under natural conditions in humid areas of the Mid-West, South, and semi-arid areas of the Southwest, and under controlled conditions in storage chambers, including the conduct of moisture and seed germination tests with each lot at specified intervals;
- (d) Investigating the use of insecticides and fungicides during storage and the use of respiration inhibitors to prolong the seed life.

Plantings will be made in areas other than the main corn belt to determine the possibilities of growing hemp on soils less competitive for food production. Although lower yields may be anticipated than on the higher nitrogenous soils of the corn belt, improved fiber quality and lower production costs are expected to compensate for the reduction in yield.

Cooperative retting studies will be conducted with special emphasis on determining water retting practices that could be adapted to areas of production that will produce a better quality fiber than the dew-retting methods which have been used.

(4) Increase of \$2,500 to place on a full year basis in 1951 pay adjustments under Public Law 429 which were in effect for only a part of the fiscal year 1950.

### CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

- For expenses necessary to enable the Secretary to carry out his responsibilities under section 7 (b) of the Strategic and Critical Materials Stock Piling Act of July 23, 1946 ([60 Stat. 596] 50 U.S.C. 98f), \$515,500, including personal services in the District of Columbia [\$349,000] and not to exceed \$30,000 for alterations at the Eastern Regional Research Laboratory, Wyndmoor, Pennsylvania, to provide pilot plant facilities for tannin extraction, and such amount shall be in addition to amounts otherwise available for alterations.
- 1
- 2

The first change in language inserts the proper U. S. Code reference for the Strategic and Critical Materials Stock Piling Act in place of the reference to the Statutes at Large carried in the 1950 Agricultural Appropriation Act.

The second change in language is proposed to provide authority for alterations, at the Eastern Regional Research Laboratory, Wyndmoor, Pennsylvania, to provide pilot plant facilities for large scale tests of tannin extraction, the need for which is explained more fully in the justification of increases. Because of the 2% limitation on building alterations contained in the language for the item "Salaries and expenses, Office of Administrator, Agricultural Research Administration", it is believed desirable that the language clearly indicate that alterations financed from the special appropriation for Research on Strategic and Critical Agricultural Materials shall be in addition to those financed under other appropriations or funds of the Bureau of Agricultural and Industrial Chemistry, in order that the full amount of the 2% limitation will be available, if required, for alterations incident to the regular work of the Bureau.





## STATUS OF PROGRAM

This appropriation enables the Department of Agriculture to carry out its responsibilities under the Strategic and Critical Materials Stock Piling Act of July 23, 1946. This Act authorizes and directs the Department to make scientific, technologic, and economic investigations of the feasibility of developing domestic sources of supplies of any agricultural material or substitutes for such materials determined by the Munitions Board to be strategic and critical. Proposed investigations are discussed with the Munitions Board before initiation, and work is undertaken only on recommendation of the Board.

Current activities include research on domestic rubber production, tannin, strategic oils, and fiber plants, as follows:

1. Rubber production investigations are carried on in California and Texas to test means of quickly and inexpensively establishing field stands of guayule, the testing and hybridization of new strains to increase the yield of natural rubber, the development of the best methods of recovering rubber from the guayule plant, and the derdsination of such rubber to improve quality.
2. Tannin investigations are at present devoted to the possible production of tanning materials from crops that can be produced in the United States, with special reference to sumac and canaigre.
3. The work on strategic vegetable oils is devoted to improvements in the production of the castor bean plant, including the development of varieties adapted for commercial handling.
4. In the field of strategic cordage, attempts are being made to provide for the domestic production of hard fibers that can be used for lines and ropes on naval vessels. The most promising plant of this type at present is sansevieria.

Selected Examples of Recent Progress

1. A new process has been developed for the recovery of rubber from freshly harvested guayule shrub with increased yields and better quality rubber in contrast to the present method involving several steps of pretreatment.
2. Traces of copper manganese normally present in guayule have been successfully removed, with resulting improvement in the quality and storability of guayule rubber.
3. Many new types of rubber from guayule have been specially prepared and tried out, and some of these are showing a high degree of serviceability under low temperature conditions.
4. Beresination of guayule shrub prior to extraction of rubber yields rubber which has been found to compare favorably with plantation Hevea rubber in quality.
5. Guayule hybrids have been developed that yield as much as 70 percent more rubber per acre. Vigorous interspecific hybrids were developed by crossing ordinary guayule with a robust Mexican species. Hundreds of selections that maintain hybrid vigor in seedling off-springs are under test for adaptability to different soils and climatic conditions in the southwest.
6. Rubber content of guayule plants was increased 50 percent by removing the usual profuse flower heads. Hormone sprays appear promising for flower suppression.
7. Direct-row seeding and border irrigation close to the row appear promising for guayule production. Field tests on irrigated land suggest that the expensive nursery phase of guayule production might be eliminated. Rubber yields of one ton or more per acre were produced at the age of four years instead of five by proper water management.

PASSENGER MOTOR VEHICLES

Replacement: The estimate for the purchase of passenger motor vehicles under this appropriation contemplates the replacement of one vehicle, at an estimated net cost of \$1,000. The car to be replaced, which is used in connection with the program on domestic production of natural rubber, is a 1940 model, and at the time of trade-in will have an approximate mileage of 85,000 miles.



THE HISTORY OF THE

REIGN OF HENRY THE FIRST  
BY JOHN GILBERT FROTHINGHAM  
OF NEW-YORK  
IN TWO VOLUMES  
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RESEARCH ON AGRICULTURAL PROBLEMS OF ALASKA

Appropriation Act, 1950 .....	\$675,000
Anticipated pay adjustment supplemental .....	3,800
Base for 1951 .....	678,800
Budget Estimate, 1951 .....	316,200
Decrease .....	<u>-362,600</u>

SUMMARY OF INCREASES AND DECREASES, 1951

To provide more adequately for the Federal share of the joint agricultural research program in Alaska .....	+50,000
To place on a full-year basis, pay adjustments under Public Law 429, which were in effect for only a part of fiscal year 1950 .	+2,400
To eliminate non-recurring item provided in 1950 Agricultural Appropriation Act for construction of buildings and facilities	-415,000

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950 (estimated)	Increase or decrease		1951 (estimated)
			P.L. 429 adjustment	Other	
1. Research on agricultural problems of Alaska .....	\$130,233	\$263,800	+\$2,400	+\$50,000(1)	\$316,200
2. Building program .....	290,924	415,000	- -	-415,000(2)	- -
Total pay adjustment costs, Public Law 429	- -	[3,800]	[+2,400]	[+1,000]	[7,200]
Unobligated balance .....	19,843	- -	- -	- -	- -
Total available (comparable to 1951) .....	441,000	678,800	+2,400(3)	-365,000	316,200
Transfers from other appropriations (shown in detail below) .	+13,786	- -			
Total available (as reflected in budget schedules) .....	454,786	678,800			
Transfers from: "Research and Marketing Act of 1946, Department of Agriculture"	-13,598	- -			

(Continued on next page)

Project	1949	1950 (estimated)	Increase or decrease:		1951 (estimated)
			P.L. 429 : adjustment:	Other :	
Transfers from:					
"Payments to States,					
Hawaii, Alaska, and:					
Puerto Rico, agri-					
cultural experiment:					
stations, Agri-					
cultural Research					
Administration" ...	-188:	- -			
Transfer in 1950					
estimates to:					
"Payments to					
States, Hawaii,					
Alaska, Puerto					
Rico, Agricul-					
tural Experiment					
Stations, Agri-					
cultural Research:					
Administration"...	+44,940:	- -			
Anticipated pay					
adjustment suppl-					
mental .....	- -:	-3,800:			
Total estimate or					
appropriation .....	485,940:	675,000:			

#### INCREASES AND DECREASES

The net decrease of \$362,600 in this item for 1951 is composed of the following:

(1) Increase of \$50,000 under the project "Research on agricultural problems of Alaska" to provide more adequately for the Federal share of the joint agricultural research program in Alaska.

Need for Increase: The building program in connection with the Alaskan research program, amounting in total to \$715,000, will be completed with fiscal year 1950 funds. The full research program should be put in operation as soon thereafter as possible to cope with the problems of developing the agricultural potential of the Territory and providing more fully for local production of food required in the Territory. Local production is now estimated to supply only 15 percent of Alaska's needs. In order to provide more adequately for the Federal share of the joint Federal-Territorial agricultural research program, strengthening of the work in certain fields will be required. A discussion of the needs by projects follows:



Soils. Soil survey work is now proceeding in the Matanuska Valley but needs to be undertaken in other parts of Alaska, particularly the Tanana Valley. The increase proposed for fiscal year 1951, involving two additional assistants, would make possible the extension of the work to areas outside the Matanuska Valley and would also provide for fertilizer investigations to determine the conditions under which fertilizers are needed on Alaskan soils. (marginal note: marginal of 1951)

Animal Husbandry. Dairy breeding investigations are proceeding very satisfactorily. Considerable numbers of cross-bred calves are expected in the dairy herd and in the herds of cooperating farmers this year. So far no veterinarian or animal pathologist has been available, however, to help in disease control. A pathologist is needed for the staff in 1951. The first pathological project would include a study of certain diseases in fur bearing animals, but the pathologist would be subject to assignment to other livestock problems later. (mink)

Marketing. Studies in farm management are being continued to determine what types of agricultural products in Alaska have been profitable. Marketing investigations are needed in order to help the agricultural producers to determine ways of reducing the losses that have been occurring in connection with marketing local produce. This would involve not only market operations, but also such questions as grades and standards for vegetables. These investigations would be aided by and correlated with studies by the agricultural engineer and by the horticulturist on methods of storing potatoes and other vegetables in an experimental storage house that is to be constructed under the 1950 appropriation.

Field Crops. An additional agronomist is needed to conduct plant breeding investigations. Trials of varieties and strains of field crops are under way, but it has not yet been possible to carry out breeding investigations for the production and trial of new varieties under Alaskan conditions.

Nutrition. By the end of the fiscal year 1950, when laboratory facilities become available, it is expected that a nutritionist can be employed. In 1951 a food chemist should be added to the staff who will devote his time to studies of the nutritive value of Alaska-grown products for human food and for the feeding of livestock.

(2) A decrease of \$415,000 under the project "Building program" due to the elimination of the non-recurring item provided in 1950 Agricultural Appropriation Act for completion of the construction of buildings and facilities in Alaska, planned as follows:

Palmer - greenhouses, experimental vegetable storage shed and cellar, housing. (one building in 1951)  
Fairbanks - greenhouse, office, housing. (2 buildings)  
Matanuska - grain storage, threshing building, garage.  
Petersburg - dwelling. (one building)

(3) Increase of \$2,400 to place on a full-year basis in 1951 pay adjustments under P.L. 429 which were in effect for only a part of the fiscal year 1950.

CHANGE IN LANGUAGE

The estimates include a proposed change in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

For expenses necessary to enable the Secretary to conduct research into the basic agricultural needs and problems of the Territory of Alaska, through such agencies of the Department as he may designate, independently or in cooperation with appropriate agencies of the Territory of Alaska, including personal services in the District of Columbia, [and the construction or acquisition of necessary buildings and facilities on land owned either by the Federal Government or by the Territory of Alaska or agencies thereof without regard to other restrictions of existing law, \$675,000] \$316,200.

This change in language proposes deletion of the non-recurring authority contained in the 1950 Agricultural Appropriation Act for construction or acquisition of buildings and facilities. It is anticipated that all contracts for construction work will have been let by June 30, 1950, and retention of the provision will therefore be unnecessary in fiscal year 1951.

*90-10000-10000*  
*90-10000-10000*  
*90-10000-10000*

## STATUS OF PROGRAM

The Territorial Experiment Stations were operated by the U. S. Department of Agriculture during fiscal years 1948 and 1949, under the provisions of Public Law 266 of the 80th Congress. Under the Agricultural Appropriation Act for 1950, direct jurisdiction of the experiment stations was returned to the University of Alaska, which is the Land-Grant College of the Territory, and provision was made for allotting grant funds under the Hatch, Adams, Purnell, Bankhead-Jones and Research and Marketing Acts to the University for the operation of the agricultural experiment stations.

Cooperative arrangements have been made with the University of Alaska for the inauguration of a joint program of agricultural research under which the experiment stations of the Territory would join with the Department of Agriculture in investigations leading to increased farm production and stabilization of the rural economics of the Territory. The University Board of Regents and the Research Administrator of the U. S. Department of Agriculture have agreed on a joint director who will receive his salary partly from Federal and partly from Territorial funds and will be responsible for directing the joint program for both agencies.

### Construction

During the fiscal years 1948 and 1949, there were some modern improvements in the physical plant at the three experiment stations near Fairbanks, Matanuska and Petersburg, respectively.

Under a contract authorization contained in the 1949 Agricultural Appropriation Act, for which an appropriation of \$300,000 was made in the Second Deficiency Appropriation Act, 1949, a laboratory-office building is under construction at Palmer, Alaska, which will provide headquarters for the director and for the heads of most of the experiment station departments and the Federal research projects.

An additional amount of \$15,000 for buildings was included in the 1950 Agricultural Appropriation Act. This will be used in part for the construction of housing, greenhouses, and an experimental vegetable storage shed and cellar at Palmer. The appropriation also authorized the use of these funds for the construction of buildings on property owned by the Territory of Alaska. The Board of Regents of the University has passed a resolution authorizing such construction and offering to execute long-time leases on the land that will be occupied by such buildings. It is planned under this arrangement to construct a greenhouse, an office, and certain housing at Fairbanks; a grain storage, threshing building, and garage at Matanuska; and dwelling at Petersburg.

### Research Projects

By December, 1948, specialists in soils, agronomy, horticulture, and animal breeding were at work in Alaska. Subsequently, an agricultural



engineer, an agricultural economist, an assistant agronomist, and an assistant soils specialist have been employed. It is anticipated that a full-time entomologist, a plant pathologist, and a nutritionist will each be employed before the end of the fiscal year 1950.

1. The first step in soils investigations has been to undertake a systematic soil survey of the Matanuska Valley and to make reconnaissance surveys of several other areas, including the Tanana Valley, the Dunbar area, and parts of the Kenai Peninsula. During the summer of 1948, 49,900 acres in the Matanuska Valley were surveyed and compiled on manuscript maps. Before this survey could be undertaken, it was necessary to establish a soil classification to constitute a basis for this and subsequent survey work. Field observations supplemented by chemical studies are so far being carried out in a temporary laboratory. Tentative fertility levels with respect to mobile plant nutrient elements have been established, based on analyses of 2,091 soil samples collected during the mapping season. An exploratory field study revealed that great plant responses may be expected from moderate applications of nitrogen to established timothy-alsike stands.
2. In dairy husbandry, work is being concentrated on genetics investigations including the breeding of more cows in Alaska by artificial insemination. It is anticipated that over 300 calves will be born during 1949 from the artificial breeding program, in addition to a number of cross bred calves in the station herd. Efficient calf rations are being studied. The calves on Alaskan grown grains have so far made the smallest dairy gains, but when these grains are supplemented by special rations containing additional vitamins, the gains have been very satisfactory and at reasonable cost. It has also been found that cows do better on silage than on barn-dried hay or on field-cured hay.
3. Poultry studies indicate fairly conclusively that supplementary vitamin D requirements for laying hens in Alaska are considerably higher than those considered standard in the northern states. Hens fed vitamin D at the higher rates produced significantly more eggs, with heavier shells, resulting in higher net income per hen over feed cost. The special need for vitamin D is probably due to the long period of the year with limited sun light.
4. During the past two years, extensive tests have been made by the cereal crops department involving a considerable number of varieties of wheat, oats, and barley grown in Alaska, Siberia, Scandinavia, and the continental United States. So far, Choget wheat has been considered a standard variety, but there are indications that certain hybrids will be improvements. Climax oats are superior to others, but are not yet grown commercially in the Territory. In a study on pasture renovation, excellent strains of both white and Alsike clover were obtained in a mixture with oats as a nurse crop.

5. In horticulture, most of the effort during 1948 was directed to the testing of a large number of varieties of potatoes and other vegetables. More than 7,000 potato seedlings were under trial, some of which promise to yield more than the varieties now grown commercially in Alaska. During 1949, tests of tree fruits and small fruits are being undertaken. Potatoes constitute the most important cash crop in both the Tanana Valley and the Matanuska Valley, but the plant disease known as ring rot has recently become established and is causing considerable damage in the field and in storage. A plant pathologist employed during the summers of 1948 and 1949 found this disease particularly prevalent in the Tanana Valley and was able to recommend means of reducing losses from this cause through the use of disease-free seed potatoes. As a result, it is hoped that losses from this source will be found much lower in 1949.
6. In the field of farm management studies, the experiment station cooperated with the Bureau of Agricultural Economics in a study of farm incomes and credit, production, and marketing problems during the summer of 1948. In accordance with information supplied several congressional committees recently, the survey showed that dairy and potato farms appear to have been more profitable in 1947 than vegetable and poultry farms. In that year the operators' net income on 30 of Alaska's 40 odd dairy farms averaged \$4,327. This includes \$98 for work off the farm and about \$660 for farm products consumed in the home. The operators' net income on 12 potato farms averaged \$4,392, including \$460 for farm products used in the home and nearly \$1,400 for work off the farm. Net income on poultry farms was about \$2,500. The recently appointed head of the Department of Agricultural Economics of the experiment station is now making a special study of available marketing facilities and problems.





PASSENGER MOTOR VEHICLES

Replacement. The estimates contemplate the replacement of one vehicle at an estimated net cost of \$1,000. At the time it is proposed to replace this vehicle, a 1948 model, approximate mileage will be 50,000 miles. This car is in use throughout the year, at times under severe climatic conditions. It is estimated that at least 90% of the mileage will have been on extremely rough gravel roads with resultant wear and tear considerably in excess of what would have been experienced if the car were used on relatively good roads.

Section 1

Text in the top section of the page, appearing to be a list or series of entries.



OFFICE OF EXPERIMENT STATIONS

Purpose Statement

The Office of Experiment Stations as presently organized was established in 1888 following passage of the Hatch Act of 1887 authorizing Federal-grants for State agricultural experiment stations.

The primary function of the Office of Experiment Stations is the administration of the Acts of Congress authorizing Federal-grant funds for research at the agricultural experiment stations of the Land Grant Colleges in the States, Hawaii, Alaska, and Puerto Rico. These acts include the Hatch Act of 1887, the Adams Act of 1906, the Purnell Act of 1925, Title I of the Bankhead-Jones Act of June 29, 1935, Title I, section 9, of the Research and Marketing Act of 1946, and supplementary acts. A major responsibility involved in this function is the coordination of research effort among the State experiment stations and between these experiment stations and the research agencies of the Department of Agriculture.

Grant Fund Administration. In administering the grants to the States of funds authorized by the several Federal-grant research acts, the program involves (1) advance approval of each individual research proposal financed in whole or in part from the Federal-grant funds to assure their efficient and legal use; (2) close advisory relations with the experiment stations with reference to the character, quality, and conduct of the research for which funds are expended; (3) annual examination in the field of the research and expenditures of each experiment station under the several grant acts; and (4) preparation of an annual report to Congress on this research and the expenditures, as required by law. There are currently active approximately 3,800 specific lines of agricultural investigations being financed from Federal-grant funds which are a responsibility of this Office. In the interests of adequate coordination, the Office also must keep informed concerning approximately 4,700 other lines of inquiry at the State agricultural experiment stations which are supported from non-Federal funds.

Research Coordination. The Office participates actively in the planning and coordination of research among the experiment stations and between the stations and the Department of Agriculture. Members of the technical staff of the Office (1) assist the States in planning cooperative research programs to secure integration and the fullest coordination; (2) assist Federal research agencies in arranging for cooperation with the States; (3) actively participate in planning conferences and work groups engaged in development of regional research involving two or more States; and (4) suggest to the States lines of inquiry most needed to establish well-rounded regional programs.



The Office is also responsible for administering the Federal Experiment Station in Puerto Rico which serves as a tropical outpost of the Department for the conduct of agricultural research dealing principally with the development and production of crops of strategic importance which can be grown only in the Tropics and with other crops which may be of economic importance especially to the Southern States.

As of November 30, 1949, the Office had 143 employees, 72 of whom were in Washington and the balance in the field.

	<u>Estimate,</u> <u>1950</u>	<u>Budget Estimate,</u> <u>1951</u>
Appropriated Funds:		
Payments to States, Hawaii, Alaska, and Puerto Rico.....	\$7,406,208	\$7,416,208
Salaries and Expenses.....	<u>384,050</u>	<u>399,400</u>
Total.....	<u>7,790,258</u>	<u>7,815,608</u>

Summary of Appropriations, 1950 and Estimates, 1951  
(Amounts Include Estimated Pay Adjustment Supplementals)

*Quoted  
Source*

	: Total	: Budget	: Increase (+)
	: estimated	: Estimates,	: or
	: available,	: 1951	: Decrease (-)
	: 1950	:	:
Payments to States:	:	:	:
Hatch Act.....	: \$720,000	: \$720,000	: --
Adams Act.....	: 720,000	: 720,000	: --
Purnell Act.....	: 2,880,000	: 2,880,000	: --
Bankhead-Jones Act.....	: 2,863,708	: 2,863,708	: --
Hawaii.....	: 90,000	: 90,000	: --
Alaska.....	: 42,500	: 52,500	: + \$10,000
Puerto Rico.....	: 90,000	: 90,000	: --
Total payments to States.....	: 7,406,208	: 7,416,208	: + 10,000
Salaries and Expenses:	:	:	:
Administration of grants and coordination of research with States.....	: 236,250	: 238,450	: + 2,200
Federal Experiment Station, Puerto Rico.....	: 147,800	: 160,950	: + 13,150
Total salaries and expenses	: 384,050	: 399,400	: + 15,350
Total, direct annual appropriation.....	: 7,790,258	: 7,815,608	: + 25,350

(over)

(a) Payments to States, Hawaii, Alaska, and Puerto Rico  
for Agricultural Experiment Stations

Appropriation Act, 1950, and base for 1951.....\$7,406,208  
Budget Estimate, 1951..... 7,416,208  
Increase, 1951 (for additional essential research in  
Alaska as authorized by the Alaska  
Station Act of June 20, 1936)..... + 10,000

PROJECT STATEMENT

Project	1949	1950 (estimated)	Increase	1951 (estimated)
1. Hatch Act				
(March 2, 1887)...	\$720,000	\$720,000	--	\$720,000
2. Adams Act				
(March 16, 1906)...	720,000	720,000	--	720,000
3. Purnell Act				
(February 24, 1925)...	2,880,000	2,880,000	--	2,880,000
4. Title I, Bank-				
head-Jones Act				
(June 29, 1935)...	2,863,708	2,863,708	--	2,863,708
5. Hawaii Act				
(May 16, 1928)....	90,000	90,000	--	90,000
6. Alaska Act				
(February 23, 1929)...	15,000	15,000	--	15,000
7. Alaska Act				
(June 20, 1936)....	27,500	27,500	+10,000	37,500
8. Puerto Rico Act				
(March 4, 1931)	90,000	90,000	--	90,000
Total available...	7,406,208	7,406,208	+10,000 (1)	7,416,208
Transfer to other				
appropriations				
(shown in detail				
below).....	- 188			
Total available as:				
reflected in				
budget schedules..	7,406,020	7,406,208		
Transferred to "Re-				
search on agricul-				
tural problems of				
Alaska, Depart-				
ment of Agricul-				
ture".....	+ 188	--		
Transfer in 1950				
estimates from "Re-				
search on agricul-				
tural problems of				
Alaska, Department:				
of Agriculture"....	- 44,940	--		
Total appropriation				
or estimate.....	7,361,268	7,406,208		



- (1) An increase of \$10,000, authorized by the Alaska Station Act of June 20, 1936, to provide for additional essential research in Alaska.

Need for Increase: Postwar development in Alaska has intensified the demand for information which will lead to increased and more efficient agricultural production. To speed up solution of some of the innumerable problems facing pioneer farmers in an area one-fifth as large as the continental United States, Congress began making appropriations to the Department of Agriculture in the fiscal year 1948, to supplement Federal-grant funds being made available to the University of Alaska experiment station under the Alaska Station Acts of 1929 and 1936. This direct Federal support not only has made possible attack on more problems facing farmers in the Territory, but also has furnished leadership and guidance in the conduct of the research program. The result is a closely knit cooperative research organization supported jointly by the Territory and the Federal Government.

The major portion of the research program in 1951, as in previous years, will be concerned with investigations to increase production of economic plants and animals. Up to the present time the small group of professional employees has been engaged primarily in such fields of agriculture as agronomy, horticulture, animal husbandry, and soil science. Because of the demands for new information in these fields, it has been possible to undertake only very preliminary investigations in the field of plant pathology by an employee of the Bureau of Plant Industry, Soils, and Agricultural Engineering serving on temporary detail in Alaska.

However, these preliminary investigations have pointed out the pressing need for a plant pathologist to serve the needs of the Tanana Valley. Bacterial ring rot of potatoes and various mosaic diseases are seriously affecting agricultural production in the Tanana Valley, which is potentially the largest area for agricultural production in the Territory.

The \$10,000 increase requested would be used to employ a well trained and experienced plant pathologist, who would be headquartered at Fairbanks, and to furnish him with necessary supplies and equipment.

Authorization: The Alaska Station Act of June 20, 1936, extends to Alaska the benefits of the Adams and Purnell Acts and authorizes appropriations increasing from \$5,000 in 1937 to \$37,500 for 1947 and subsequent years. The following tabulation indicates action taken on this item since 1944:

<u>Fiscal</u> <u>Year</u>	<u>Authorization</u>	<u>Budget</u> <u>Estimate</u>	<u>Appropriation</u>
1944	\$22,500	\$22,500	\$22,500
1945	27,500	22,500	22,500
1946	32,500	32,500	27,500
1947	37,500	37,500	27,500
1948	37,500	27,500	27,500
1949	37,500	27,500	27,500
1950	37,500	27,500	27,500
1951	37,500	37,500	

AGRICULTURAL RESEARCH ADMINISTRATION  
Office of Experiment Stations

Payments to States, Hawaii, Alaska, and Puerto Rico

Alternate Project Statement

Project	1949	Increase (+):		1950	Decrease (-):		1951	RMA - Section 9:	Grand Total
		Estimated	or		Estimated	Estimated			
1. Hatch Act, approved March 2, 1887.....	\$720,000	\$720,000	--		\$720,000	--			\$720,000
2. Adams Act, approved March 16, 1906.....	720,000	720,000	--		720,000	--			720,000
3. Purnell Act, approved February 25, 1925.....	2,880,000	2,880,000	--		2,880,000	--			2,880,000
4. Title I, Bankhead-Jones Act, appvd. June 29, 1935	2,863,520	2,863,708	--		2,863,708	--			2,863,708
5. Hawaii Act, approved May 16, 1928.....	90,000	90,000	--		90,000	--			90,000
6. Alaska Act, approved February 23, 1929.....	15,000	15,000	--		15,000	--			15,000
7. Alaska Act, approved June 20, 1936.....	27,500	27,500	-10,000		37,500	--			37,500
8. Puerto Rico Act, approved March 4, 1931.....	90,000	90,000	--		90,000	--			90,000
9. Title I, section 9, Research and Marketing Act, approved August 14, 1946, for research into basic laws and principles relating to agriculture in its broadest aspects conducted by the State agricultural experiment stations and administration of such research..	--	--	--		--	--		\$5,000,000	5,000,000
Total available.....	7,406,020	7,406,208	+10,000		7,416,208	5,000,000			12,416,208



Project	1949	1950 Estimated	Increase (+) or Decrease (-)	1951 Estimated	1951 RMA - Section 9	Grand Total
Transferred to "Research on agricultural problems of Alaska, Department of Agriculture".....	+ 188	--	:	:	:	:
Transfer in 1950 esti- mates from "Research on agricultural problems of Alaska, Department of Agriculture".....	- 144,940	--	:	:	:	:
Total appropriation or estimate.....	7,361,268	7,406,208	:	:	:	:

STATUS OF PROGRAM

*Insert to 281*

The several appropriations under "Payments to States, etc." represent the Federal Government's support and encouragement to the State, Territorial, and Puerto Rican agricultural experiment stations which were established as departments of the land-grant colleges pursuant to the provisions of the Hatch Act of 1887.

The State agricultural experiment stations conduct research and experiments along the lines authorized by the several Federal-grant fund acts and the complementary acts of the States on the many problems constantly encountered in the development of a permanent and sustaining agriculture and in the improvement of the economic and social welfare of the farm family. Because of differences in climate, soil, market outlets, and other local problems, each State has distinct problems of production and marketing of crops and livestock. The farmers in the individual States naturally look to their State agricultural experiment stations for solution of State and local problems, and in recent years have requested increased service to help meet changing conditions.

The research programs of the State stations, to be most effective, include participation in regional and national programs. Joint attack by a group of State stations is the most effective and often the only practical approach to problems of common interest. The stations, to an ever increasing extent, are acting as regional groups to provide cooperative coordinated attacks on problems of regional and national interest.

In a similar manner, the research programs of the State agricultural experiment stations and the Department of Agriculture are supplementary and interdependent. The extent of the cooperation between the Department and the State agricultural experiment stations is indicated by the fact that during the fiscal year 1949 there were executed approximately 1,400 new or revised formal memoranda of understanding covering cooperative research between bureaus of the Department and the State stations. In addition, there was considerable informal cooperation between Department bureaus and State stations.

These Federal-grant funds constitute a powerful force in bringing about inter-State cooperation and Federal-State collaboration in the planning and conduct of this overall program of agricultural research. Therefore, the full impact of the Federal-grant funds on this program cannot be fully evaluated solely on the basis of the additional dollars thus distributed to the overall financial support for agricultural research.

Research at the stations during the fiscal year 1949 included approximately 3,800 specific lines of research financed wholly or in part by Federal-grant funds and about 4,700 lines of research under non-Federal funds available to the stations.

These lines of research are continued as long as they are progressively productive. Approximately 17 percent of the research program passes its point of maximum productiveness annually and is replaced by new research on pressing problems.

Distribution of Payments: Under formulas contained in the Hatch, Adams, and Purnell Acts, Title I of the Bankhead-Jones Act, and Section 9 of the Research and Marketing Act amounts made available to the States, Hawaii, Alaska, and Puerto Rico are shown on the following table for the fiscal year 1949:



Distribution by State of Federal-Grant Funds Authorized by the Hatch, Adams, and  
Purnell Acts, Title I of the Bankhead-Jones Act, and Section 9, Research and  
Marketing Act - Fiscal Year 1949

State	Hatch, Adams and Purnell Acts 2/	Title I, Bankhead- Jones Act	Sections 9(b)1 and 9(b)2 Research and Marketing Act	Total Federal-Grant Funds
Alabama.....	\$ 90,000.00	\$ 96,152.81	\$ 76,919.41	\$ 263,072.22
Alaska.....	42,500.00	2,627.86	13,598.02	58,725.88
Arizona.....	90,000.00	15,499.36	20,468.52	125,967.88
Arkansas.....	90,000.00	74,312.76	64,190.55	228,503.31
California.....	90,000.00	95,542.61	59,421.35	244,963.96
Colorado.....	90,000.00	26,055.98	27,132.69	143,188.67
Connecticut.....	90,000.00	26,258.56	23,458.99	139,717.55
Delaware.....	90,000.00	6,054.94	15,795.94	111,850.88
Florida.....	90,000.00	40,579.22	33,115.05	163,694.27
Georgia.....	90,000.00	101,476.80	78,620.93	270,097.73
Hawaii.....	90,000.00	10,269.39	18,492.76	118,762.15
Idaho.....	90,000.00	16,589.81	23,143.22	129,733.03
Illinois.....	90,000.00	100,946.87	68,817.22	259,764.09
Indiana.....	90,000.00	73,383.88	56,619.36	220,003.24
Iowa.....	90,000.00	74,752.37	58,426.74	223,179.11
Kansas.....	90,000.00	57,178.54	43,955.41	191,133.95
Kentucky.....	90,000.00	95,122.25	75,013.23	260,135.48
Louisiana.....	90,000.00	65,919.96	55,365.98	211,285.94
Maine.....	90,000.00	24,124.05	24,686.34	138,810.39
Maryland.....	90,000.00	35,303.01	29,936.10	155,239.11
Massachusetts.....	90,000.00	21,787.39	23,238.20	135,025.59
Michigan.....	90,000.00	85,827.73	61,823.19	237,650.92
Minnesota.....	90,000.00	66,813.91	57,250.18	214,064.09
Mississippi.....	90,000.00	84,569.98	75,266.54	249,836.52
Missouri.....	90,000.00	89,383.63	68,925.51	248,309.14
Montana.....	90,000.00	17,871.46	22,433.69	130,305.15
Nebraska.....	90,000.00	44,233.72	37,532.97	171,766.69
Nevada.....	90,000.00	3,190.40	14,130.07	107,320.47
New Hampshire.....	90,000.00	9,925.30	17,616.28	117,541.58
New Jersey.....	90,000.00	36,470.37	27,558.70	154,029.07
New Mexico.....	90,000.00	16,935.36	22,602.56	129,537.92
New York.....	90,000.00	110,224.63	65,449.74	265,674.37
North Carolina.....	90,000.00	123,766.51	94,261.74	308,028.25
North Dakota.....	90,000.00	28,147.42	28,806.94	146,954.36
Ohio.....	90,000.00	109,337.26	74,715.21	274,052.47
Oklahoma.....	90,000.00	78,367.16	58,455.46	226,822.62
Oregon.....	90,000.00	26,588.72	27,655.63	144,244.35
Pennsylvania.....	90,000.00	157,876.48	84,736.61	332,613.09
Puerto Rico.....	90,000.00	62,082.14	59,984.43	212,066.57
Rhode Island.....	90,000.00	2,857.19	14,067.99	106,925.18
South Carolina.....	90,000.00	69,224.19	57,756.29	216,980.48
South Dakota.....	90,000.00	27,733.01	27,896.54	145,629.55
Tennessee.....	90,000.00	89,992.09	73,852.04	253,844.13
Texas.....	90,000.00	173,212.81	120,598.71	383,811.52
Utah.....	90,000.00	12,170.15	19,050.92	121,221.07
Vermont.....	90,000.00	12,078.01	18,973.89	121,051.90
Virginia.....	90,000.00	82,941.86	63,920.34	236,862.20
Washington.....	90,000.00	38,797.09	33,513.03	162,310.12
West Virginia.....	90,000.00	65,169.05	46,587.31	201,756.36
Wisconsin.....	90,000.00	70,152.59	57,216.01	217,368.60
Wyoming.....	90,000.00	7,829.36	16,945.06	114,774.42
Total.....	\$4,542,500.00	\$2,863,708.00	\$2,339,999.59	\$ 9,746,207.59
Regional Research Fund.....				812,500.00 3/
Grand Total.....	\$4,542,500.00	\$2,863,708.00	\$2,339,999.59	\$10,558,707.59

1/ Amounts for Alaska transferred to appropriation item "Research on agricultural problems of Alaska".

2/ Alaska received \$15,000 Hatch, \$7,500 Adams, and \$20,000 Purnell funds; all other stations \$15,000 Hatch, \$15,000 Adams, and \$60,000 Purnell funds.

3/ These funds allotted to Regional Research projects recommended by Committee of Nine, in accordance with procedures outlined in Section 9(b)3 of the Research and Marketing Act.



Examples of Research Findings That Reached the Stage of Public Application During the Year.

1. The Michigan station has established that death losses and failure to gain weight among young pigs suffering from nutritional enteritis can be checked by the use of higher levels of certain of the B vitamins. Pigs suffering from this serious disorder responded with increasing growth to an injected solution of thiamine, riboflavin, niacin, pantothenic acid and pyridoxine, followed by supplementing feed with these vitamins in quantities far above those available in ordinary swine rations. Autopsies revealed that after the period of treatment the large intestine showed extensive repair, the characteristic surface discharge disappeared, and the digestive organs generally returned to normal. The Michigan station has estimated that general use of this information will save Michigan farmers alone an estimated five million dollars a year in preventing pig losses and runty hogs.
2. Extensive winter grazing tests on winter oats alone and in combination with other crops conducted by the Mississippi station have shown the great value of winter grazing for both dairy and beef cattle. Dairy cows in South Mississippi almost doubled their milk production when oat grazing was provided instead of the regular pasture. Steers at the main experiment station in Central Mississippi brought a profit of \$83.72 each when finished on oat grazing as compared to \$64.16 when finished in dry-lot feeding. Oats and Balboa rye produced the greatest gain in the North Mississippi tests where steers gained 250.6 pounds each in 168 days. As a result of these tests, farmers in the various sections of the State are able to select the most adaptable crops for winter pasture. In one county 1948 winter grazing acreage totaled 12,000 acres, as compared with 10,000 acres in 1947 and 3,800 acres in 1946.
3. The New Jersey Experiment Station has announced isolation from soil samples of an organism producing neomycin, an antibiotic which, after methods have been found to produce it in crystalline form, will be highly valuable in medical practice. This recent addition to the growing list of antibiotics is relatively heat stable, is active against numerous bacteria that cause serious diseases such as tuberculosis, and has only slight toxic effect on animals.
4. The Tennessee Experiment Station developed a round self-feeding hay-curing bin which cut in half the labor incident to feeding 200 beef cattle. The actual time saved amounted to 2-1/2 hours per day for two men and a team of mules or horses. In addition to the considerable saving in chore time, the bin provided increased storage space and insured better quality hay. Use of the self-feeding bin on dairy farms will save 1-1/2 hours required to feed a ton of hay.



5. High nitrogen requirements of corn were met with a single-shot nitrogen treatment on every soil tested according to results obtained by the North Carolina station and the Department of Agriculture. The same amount of nitrogen fertilizer, whether in the form of nitrate of soda or ammonium nitrate, increased corn production about 30 bushels per acre on each of the soil types tested when put on as a side dressing when the corn was knee-high rather than when the corn was in the pre-tassel or early-tassel stage. Combined with the use of adapted varieties of hybrid corn, proper use of nitrogen fertilizer is bringing bumper corn crops to Southern farms.
6. The use of radioactive phosphorus, in experiments carried on by the Colorado, Iowa, New York, North Carolina, Georgia, and Maine stations and the Department of Agriculture, has shown a wide range of choice of phosphorus taken from fertilizer and that taken from the soil by different crops at various stages of growth. At the final sampling in one comparative test with three soils that contained 71, 140, and 216 pounds of readily available phosphorus, cotton grown on the least fertile soil took 30 percent of its phosphorus from the fertilizer. Cotton grown on the most fertile soil took only 7 percent of its phosphorus from the fertilizer. These comprehensive studies with the use of the radioactive tracer methods give assurance that new techniques are being rapidly developed whereby farmers can make more efficient use of fertilizer and make better and more scientific use of the soil resources on their land.
7. In studies dealing with the metabolism of plants and animals, California Experiment Station workers have, for the first time, succeeded in producing in the plant simple sugars containing radioactive carbon. These studies have brought scientific research a step closer to discovery of the life processes involved in photosynthesis. All life on the planet depends on this process whereby energy from the sunlight reduces carbon from carbon dioxide in the atmosphere into simple sugars and other carbons. The California results were obtained by exposing plants in sunlight to an atmosphere containing carbon dioxide in which the carbon atoms were radioactive. Several years ago the same laboratory discovered a method whereby crystalline sugar can be synthesized by the use of enzymes similar to those occurring in nature. Until now, however, the behavior of simple sugars like glucose and fructose, during the course of metabolism, could not be observed, since it was impossible to distinguish one sugar fragment from another. Use of the tracer technique, whereby radioactive carbon isotopes are incorporated in the sugar molecules, permits direct observation of the course of changes taking place in individual compounds. From the standpoint of immediate application, the California laboratory is also turning over to the Medical School of the University of California radioactive glucose for research to find how diabetic animals break down sugar.

8. After seven years of breeding from a selected strain, the Missouri station has developed the S-100 soybean, a medium early, high-yielding, non-shattering, and non-lodging soybean with high-quality seed. Development of this new variety makes it possible for farmers in Southeastern Missouri to get the benefits of soybeans in rotation with cotton and still harvest a sizeable crop of soybean seed.
9. Methods of reseeding ranges compared by the Utah station showed that forage yield could be increased from 5 to 15 times over that obtained where land was allowed to reseed naturally. Early spring seeding was more successful than fall seeding. Wheat grasses seeded in the spring showed up best. On irrigated pasture orchard grass, smooth brome grass, tall oatgrass, alfalfa, Ladino clover and red clover, used in various mixtures outyielded, from 32 to 112 percent, the old pasture varieties commonly used. The new mixture gave over 5,000 pounds of digestible nutrients per acre, equivalent to high-yielding alfalfa hay or corn silage. The Utah station estimates that seeding varieties found to be best adapted from these trials will enable Utah farmers and ranchers to put five million acres of land under treatment for more productive grasses.
10. A cure for anaplasmosis, a serious blood disease of both dairy and beef cattle, costing American farmers millions of dollars in losses annually, is within sight as a result of discoveries made at the Oklahoma station during the past year. In its search for drugs for treating animals, to which the disease is carried by ticks and several kinds of flies, the Oklahoma workers found that airacyl, an arsenical, when used alone cured 71 percent of the sick animals. When this drug was used in combination with quinoline diphosphate in five cows, all of them recovered. Anaplasmosis, particularly prevalent in the Southern and some Midwestern States, has been spreading which makes this discovery the more important to livestock farmers.
11. A hamster brain live virus vaccine, developed by the Maryland station, has been widely acclaimed by Maryland poultrymen as a practical Newcastle disease control measure for broiler plants and farm flocks. The vaccine doesn't make young chicks very sick, provides immunity lasting three to four months, and doesn't interfere seriously with the egg production of older birds. The effect of this vaccine on monkeys was studied and results reveal that there may be a cross-immunizing effect with poliomyelitis. This might be an indication of a relationship between the Newcastle and Polio viruses, or it might be further confirmation of a phenomenon recently established that certain viruses may interfere with the multiplication in a host of certain unrelated viruses.

12. A low-cost practical method of combating blackroot, one of the most serious fungus diseases affecting sugar beet seedlings, was reported by the Colorado station, and gives promise of greater stability in sugar beet production. Control of blackroot by rotation is not practical because the causal organisms can live in the soil many years. Because more than one kind or strain of fungus may cause the disease, development of resistant varieties is complicated. In preliminary trials with a number of commercial fungicides, the station found an organic mercurial which gave a 60 percent increase in healthy seedlings under the soil and climate conditions prevailing in 1948 on certain Colorado sugar beet lands. A method was developed whereby this fungicide could be mixed with any amount of fertilizer at the rate of one pound per acre and at a cost of less than \$1.00 per acre.



(b) Administration of Grants and Coordination of Research  
with States

Appropriation Act, 1950.....	\$231,850
Anticipated pay adjustment supplemental, 1950.....	4,400
Base for 1951.....	<u>236,250</u>
Budget Estimate, 1951.....	<u>238,450</u>
Increase, 1951 (To place on a full-year basis in 1951, pay adjustments under P.L. 429 which were in effect for only a part of fiscal year 1950).....	<u>+ 2,200</u>

PROJECT STATEMENT  
(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950 :(estimated):	Increase P. L. 429 adjustment	1951 :(estimated)
1. Administration of grants and co-ordination of re- search with States.....	\$239,517	\$236,250	+ \$2,200	\$238,450
Total pay adjustment costs, Public Law 429.....	[ -- ]	[4,400]	[2,200]	[6,600]
Unobligated balance.....	479	--		--
Total available....	<u>239,996</u>	<u>236,250</u>	<u>+ 2,200</u>	<u>238,450</u>
Transfer in 1950 estimates from "Printing and binding, Department of Agriculture".....	- 32,996	--		
Anticipated pay adjustment supplemental.....	--	- 4,400		
Total appropriation or estimate.....	<u>207,000</u>	<u>231,850</u>		

# AGRICULTURAL RESEARCH ADMINISTRATION

## Office of Experiment Stations

### Administration of Grants and Coordination of Research with States Alternate Project Statement

Project	1949	1950	Increase(+) or Decrease(-)	1951	1951	Grand
	Estimated	Estimated		Estimated	Special Research Fund	Total
Administration of grants and coordination of research with States.....	\$239,517	\$236,250	+\$ 2,200	\$238,450	\$25,200	\$263,650
Pay adjustment costs.....	[ 4,400 ]	[ 4,400 ]	[ + 2,200 ]	[ 6,600 ]	[ 600 ]	[ 7,200 ]
Unobligated balance.....	+ 479	--				--
Total available.....	239,996	236,250	+2,200	238,450	\$25,200	263,650
Transfer in 1950 estimates from:						
"Printing and binding, Depart-						
ment of Agriculture".....	- 32,996	--				
Anticipated pay adjustment						
supplemental.....	--	- 4,400				
Total appropriation or estimate:	207,000	231,850				

Agricultural Research Administration  
Office of Experiment Stations

## Special Research Fund Projects

Financial:SRF Project:						
Proj.No.	Number	Project Title	1949	1950	Adjustments	1951
:	:	:	: Estimate:	:	: for 1951	: Estimate
:	:	:	:	:	: P. L. 429	:
1	SRF-1	Administration of Section 5, Title I, of the Bankhead-Jones Act, Approved, June 29, 1935, as authorized under proviso, Section 4, Title I, "Provided, That not to exceed 2 per centum of the sums appropriated may be used for administration of section 5 of this title."	\$25,283	\$25,000	+ \$200	\$25,200





## STATUS OF PROGRAM

The Office of Experiment Stations (a) administers the provisions of the Hatch, Adams, and Purnell Acts, and the Hawaii, Alaska, and Puerto Rico Station Acts involving Federal support of the State, Territorial, and Puerto Rico agricultural experiment stations, and (b) operates the Federal Experiment Station in Puerto Rico. The research program of this station is discussed in a separate statement.

The major activities of the Office are directed entirely toward administration of payments to States and the coordination of research among States, and between the States and the Department of Agriculture, as delineated by law in the authorizing acts.

The payments to States are made directly to each station at the beginning of each quarter of the fiscal year according to formulas prescribed by the authorizing acts. The director of each station has the responsibility of determining the program of research to be undertaken through use of these funds. In this way prompt and close range attention to the most urgent local agricultural problems is assured since the determination of program needs is made in the States. However, to assure proper coordination and to prevent duplication of effort, each individual line of research conducted wholly or in part through use of these payments to States must be approved by the Office of Experiment Stations in advance of any expenditure of funds. The principal steps involved in the administration of these grants by the Office of Experiment Stations are:

1. Examination and approval of individual lines of research submitted by the agricultural experiment stations for support under the several funds. Such examination is made to ascertain that the proposed research is in conformity with the terms of the enabling legislation and that it is adequately financed, properly staffed, and effectively coordinated with similar research at other experiment stations and in the Department of Agriculture.
2. Approval of an annual program of work submitted by each station at the beginning of each fiscal year, with a tentative allocation of funds to each line of research included in the program. Subject to approval by the Office of Experiment Stations, necessary modifications both as to subject matter and allotment of funds to projects may be made within the fiscal year.

3. Annual examination at each experiment station by members of the technical staff of the Office of Experiment Stations to determine whether the station is complying with the terms and provisions of the several acts. This involves a review of progress on each individual line of research and an examination of the accounts to ascertain that the moneys are used for appropriate purposes. On the basis of such annual examination, the Office certifies each experiment station as to its continuing eligibility to receive funds appropriated for payments to States.
4. Requiring of each experiment station after the close of the fiscal year a sworn financial statement indicating the use of the funds during the year.
5. Preparation of an annual report to Congress covering the work and expenditures of the agricultural experiment stations.

In addition to the specific steps enumerated above regarding administration of these funds, the Office of Experiment Stations through its staff of research specialists carries on numerous activities pertaining to most effective use of these Federal grants for research. These include the maintenance of extensive project records, not only regarding the research financed by these Federal grants but also the extensive and closely related programs of research in the experiment stations supported by non-Federal funds; the analysis and dissemination of information on current research activities; review of accomplishments in selected lines of work; participation in research planning conferences, particularly with reference to the organization and planning of regional research projects. These specialists also function extensively in a liaison capacity between State agricultural experiment stations and research agencies of the Department with reference to the development of cooperative research between State and Federal agencies.



(c) Federal Experiment Station, Puerto Rico

Appropriation Act, 1950.....	\$146,400
Anticipated pay adjustment supplemental.....	1,400
Base for 1951.....	<u>147,800</u>
Budget Estimate, 1951.....	160,950
Increase.....	<u>+13,150</u>

SUMMARY OF INCREASES AND DECREASES

For replacing water supply line and increasing capacity of reservoir.....	+24,950
To place on a full-year basis in 1951, pay adjustments under P.L. 429 which were in effect for only a part of fiscal year 1950.....	+700
To eliminate a non-recurring item for construction of a processing and storage building.....	-12,500

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950 (estimated)	Increase or decrease P. L. 429 : adjustment: other :		1951 (estimated)
1. Cultural, genetic, and physiological investigations of tropical and subtropical crops.....	\$87,920	\$92,800	\$400	--	\$93,200
2. Plant introduction and propagation including pest and disease control.....	40,821	42,500	300	--	42,800
3. Repair and construction....	10,000	12,500	--	+\$12,450 (1)	24,950
Total pay adjustment costs, Public Law 429..	[ -- ]	[1,400]	[700]	[ -- ]	[2,100]
Unobligated balance.....	4,339	--			--
Total available:	143,080	147,800	+ 700(2)	+12,450:	160,950
Transfer in 1950 estimates from:					
"Printing and binding, Department of Agriculture".....	-2,380	--			
Anticipated pay adjustment supplemental....	--	-1,400			
Total appropriation or estimate.....	140,700	146,400			

## INCREASES AND DECREASES

The net increase of \$13,150 in this item for 1951 is composed of the following:

(1) A net increase of \$12,450 under the project "Repair and construction" composed of:

(a) Increase of \$24,950 for replacement of the existing water supply line and enlargement of the water storage reservoir.

Need for Increase: Virtually all the rainfall in Puerto Rico occurs during six months of the year, leaving a long dry season. As a result, maintenance of an adequate supply of water for normal use is a serious problem at the Federal Experiment Station. Water cannot be secured from the public water system of the City of Mayaguez during the dry season.

The station for many years has secured its water from mountain springs about three miles distant. The main water supply line between these points was originally installed in 1912. It is now in poor condition, in spite of numerous repairs, and breaks in the line are frequent. In addition, during the past few years increased activity at the Federal Experiment Station in Puerto Rico has placed a severe strain on the water supply system. Since the ability of the station to carry out its function as an outpost of the Department in the Tropics through conduct of its own research program and through assistance to other research agencies is directly dependent upon an adequate supply of water, it is imperative that steps be taken to improve and expand the existing system.

The water storage reservoir on the main station property is in good condition and has a present capacity of approximately 2,400,000 gallons. This supply is sufficient for present station operations only when strict regulations regarding water use are imposed during the dry season. However, much of the seasonal rainfall is wasted because of insufficient capacity of both the water line and the reservoir. It is proposed, therefore, to replace the existing water line with new pipe of larger diameter and to increase the capacity for water storage by an estimated 1,000,000 gallons by increasing the depth of the basins by approximately six feet.

Replacement of the present water supply line and increase in the storage capacity of the reservoir are two parts of a single job. Unless both are accomplished, the problem of securing an adequate supply of water for present and anticipated research activities at the station cannot be solved.

- (b) Decrease of \$12,500 due to elimination of a non-recurring item provided in the 1950 Agricultural Appropriation Act for construction of a processing and storage building.

This building will be completed in the present fiscal year.

- (2) Increase of \$700 to place on a full-year basis in 1951 pay adjustments under P. L. 429 which were in effect for only a part of the fiscal year 1950.



AGRICULTURAL RESEARCH ADMINISTRATION  
Office of Experiment Stations  
Federal Experiment Station, Puerto Rico

Alternate Project Statement

Project	1949	1950	Increase (+) or Decrease (-)	1951 Estimated	RMA - Section 10(b)	Grand Total
1. Cultural, genetic and physiologic investigations of tropical and sub-tropical crops.....	\$ 87,920	\$ 92,800	+ 400	\$ 93,200	\$ 14,200	\$107,400
2. Plant introduction and propagation including pest and disease control.....	40,821	42,500	+ 300	42,800	10,200	53,000
3. Repair and construction.....	10,000	12,500	+ 12,450	24,950	---	24,950
Pay adjustment costs.....	[--]	[1,400]	[+700]	[2,100]	[ 400]	[2,500]
Unobligated balance.....	4,339	--		--		--
Total available.....	\$143,080	\$147,800	+ 13,150	\$160,950	\$ 24,400	\$185,350
Transfer in 1950 estimates from "Printing and binding, Department of Agriculture".....	2,380	--				
Anticipated pay adjustment supplemental.....	--	1,400				
Total appropriation or estimate	\$140,700	\$146,400				

Agricultural Research Administration  
Office of Experiment Stations  
Federal Experiment Station, Puerto Rico

RMA Projects

Financial Project No.:	RMA Project No.:	Project Title	1949	1950 Estimate	Adjustments for 1951 P. L. 429	1951 Estimate
		Section 10(b) Research other than utili-				
		zation:				
2	57	Establishing a cooperative national weed: control research program to develop practical methods and equipment for weed control	\$ 4,700:	\$ 8,100	+\$ 100	\$ 8,200
1	74	Erosion control and stable crop produc-				
		tion in Puerto Rico	13,300:	14,100	+ 100	14,200
2	111	Establish a cooperative national program: for the introduction and testing of new: plants of potential value to American agriculture and for the preservation of: valuable breeding stocks				
			--	2,000	--	2,000
Total, Section 10(b)			\$18,000	\$ 24,200	+\$ 200	\$ 24,400

### CHANGES IN LANGUAGE

The estimates include a proposed change in language as follows (new language underscored, deleted matter enclosed in brackets):

Federal Experiment Station, Puerto Rico: For expenses necessary to establish and maintain an agricultural experiment station in Puerto Rico, including the preparation, illustration, and distribution of reports and bulletins, and not to exceed [\$12,500 for construction of a processing and storage building, \$146,400] \$24,950 to replace water supply line and increase capacity of reservoir, \$160,950.

The proposed changes in language are for the purpose of deleting non-recurring language included in the 1950 Agricultural Appropriation Act to permit construction of a processing and storage building, and adding new language to provide for the replacement of the water supply line and enlargement of the existing water storage reservoir during the fiscal year 1951.



## STATUS OF PROGRAM

Current Activities: The Federal Experiment Station in Puerto Rico serves as an outpost of the Department of Agriculture for conduct of research in the field of tropical agriculture. In this capacity the station not only conducts a program of research but also furnishes office and laboratory space, field plots, greenhouses, and similar facilities to other research agencies of the Department. Also, close cooperative relationships have been maintained with the Office of Foreign Agricultural Relations which is concerned with agricultural research in various South and Central American countries.

The research investigations of the Federal Experiment Station in Puerto Rico fall into two broad categories (1) those dealing with crops of strategic or economic importance to the United States and (2) research on crops of value to the southern United States, conducted largely in cooperation with the other research agencies of the Department.

The Government of Puerto Rico has continued to supplement the research of the Federal station by a small annual appropriation for cooperative research on local agricultural problems. This program has been concerned particularly with such crops as vanilla, bay, and spices.

The station program is divided into major lines of work as follows:

1. Insecticidal crop investigations (rotenone).
2. Drug crops investigations (particularly quinine).
3. Food crop investigations.
4. Plant introduction and propagation.
5. Control of insect pests and plant diseases, by introduction of natural enemies and other means.
6. Investigations on crops of local importance in cooperation with the Government of Puerto Rico and other agencies.

### Selected Examples of Recent Progress:

1. Forty-three selections from tomato hybrids produced at the station between native and imported varieties produced an average of over two and one-half times as much marketable fruit as did standard varieties. The most promising hybrid developed has been introduced into the Southern Regional Tomato Trials for 1949 in order to evaluate its productivity and disease resistance at a number of locations throughout the southern United States.

2. A relatively easy test of rotenone-bearing insecticidal plant material is the determination of "total chloroform extractives". However, the true rotenone content of the material could not be predicted from this test heretofore. Careful statistical analyses performed at the station on the relationship between rotenone content and total chloroform extractives for given varieties of Derris indicate that there is a constant relationship, probably due to generic factors, and that it apparently is constant for any given variety regardless of location. The establishment of this ratio offers a quick and accurate method of determining rotenone content of Derris where the variety is known.
3. Forty-four different varieties of papaya from widely separated locations in the tropical world have been introduced by the station for testing against the destructive virus disease, bunchy top, which has made papaya production virtually impossible in many areas. Valuable genes for fruit size, shape, quality, growth habits, and setting characteristics have been discovered in these stocks. Pathological and breeding investigations are being conducted in an effort to develop strains of papaya resistant to the disease.
4. One of the major limiting factors in vanilla production is a serious root rot disease. To combat this disease, a number of crosses between commercial vanilla and other vanillas resistant to the disease have been made. During the year, 40 of the most promising hybrids have been transplanted to field conditions where they are under observation for resistance to vanilla root rot and for quality of fruit.
5. An experiment designed to determine the effect of bamboo on succeeding crops was completed during the year. The results indicated that successful cropping practices with all types of crops may be followed immediately in areas previously planted to bamboo. Experiments on bamboo fertilization indicate that the use of ammonium sulphate is highly beneficial; growth and vigor of fertilized clumps was almost double that of control clumps. These findings add impetus to the increasing use of bamboo as an important soil conserving crop in Puerto Rico.

AGRICULTURAL RESEARCH ADMINISTRATION  
Office of Experiment Stations

Functional Summary of RMA Projects Carried Out Under Title II

Functional Classification	1949	1950		Adjustments for 1951		1951
		Estimated	P. I.	429	Estimated	
<u>MARKETING RESEARCH AND SERVICES</u>						
I. Basic data and information:						
a. Reports on supplies, prices and movement of farm products.....	\$1,000	\$20,550	--	--		\$20,550
b. Improving market news and other market information services.....	--	4,700	--	--		4,700
Total, Financial Project I.....	1,000	25,250	--	--		25,250
II. Expansion of outlets for farm products:						
b. Exploring opportunities for expanding domestic markets.....	2,300	9,600	--	--		9,600
c. Determining consumer preferences.....	4,400	20,600	--	--		20,600
f. Analyses of supply, demand and consumption.....	6,700	29,400	--	--		29,900
Total, Financial Project II.....	13,400	60,100	--	--		60,100
III. Marketing services, costs and margins:						
a. Analyses of marketing services.....	--	1,500	--	--		1,500
c. Measurement of costs and margins.....	--	31,350	--	--		31,350
Total, Financial Project III.....	--	32,850	--	--		32,850
IV. Improvement in preparation and handling of farm products:						
a. Development and improvement of grades and standards.....	12,500	37,000	--	--		37,000
b. Developing improved containers and methods of packaging.....	--	2,500	--	--		2,500
c. Improving transportation services and equipment.....	--	3,500	--	--		3,500
d. Economic studies of new and improved processing methods.....	4,400	15,100	--	--		15,100
e. Improved storage and conditioning of farm products.....	1,500	26,000	--	--		26,000

(Continued on next page)



Functional Classification	1949	Adjustments for 1951		1951
		Estimated:	P. L. 429	
IV. Improvement in preparation and handling of farm products (continued):				
f. Quality preservation in marketing channels.....	\$7,000	\$20,700	--	\$20,700
Total, financial Project IV.....	25,400	104,800	--	104,800
V. Evaluation and improvement of marketing system:				
b. Increasing efficiency of merchandising agricultural products.....	9,800	27,300	--	27,300
c. Evaluation of market organization.....	12,700	49,700	--	49,700
Total, Financial Project V.....	22,500	77,000	--	77,000
Overall administration.....	4,455	11,200	+ \$100	11,300
Total, Title II.....	66,755	311,200	+ 100	311,300

STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS  
(Amounts shown include pay adjustment costs)

Item	Obligations, 1949	Estimated Obligations, 1950	Estimated Obligations, 1951
Research and Marketing Act of 1946, Department of Agriculture (Office of Experiment Stations):			
Payments to States for research into the basic laws and princi- ples relating to agriculture in its broadest aspects conducted by the State agricultural ex- periment stations, and adminis- tration of such research (Section 9) .....	a/ \$3,245,543:	\$5,000,000:	\$5,000,000
Research at Federal Experiment Station, Puerto Rico, on erosion control, weed control, and plant introduction (Title I, Section 10(b)) .....	18,000:	24,200:	24,400
Marketing research (Title II) ....	66,755:	311,200:	311,300
Total, Research and Marketing Act of 1946 .....	3,330,298:	5,335,400:	5,335,700
Special Research Fund, Department of Agriculture (Office of Experi- ment Stations):			
For administration of payments to States for research under Title I of the Bankhead-Jones Act of June 29, 1935 .....	25,283:	25,000:	25,200
TOTAL, OBLIGATIONS UNDER ALLOTMENTS.	3,355,581:	5,360,400:	5,360,900

a/ Includes \$13,598 transferred to "Research on agricultural problems of Alaska" in 1949.





BUREAU OF ANIMAL INDUSTRY

✓ Purpose Statement

The Bureau of Animal Industry, established by the Act of May 29, 1884, conducts research and administers a program primarily concerned with the protection and development of the livestock, meat, poultry, and related industries.

1. Research includes:

- a. Experiments on the development of livestock (except dairy cattle), poultry and domestic fur animals, together with studies of methods of improving the quality and usefulness of their products.
- b. Investigations of diseases and parasites affecting all classes of livestock, poultry, and domestic animals.

2. Protective measures include:

- a. Inspection of animals and poultry at ports of entry, together with inspection and supervision of animal products or materials permitted entry under restrictions, in order to exclude diseases of foreign origin, particularly such dangerous diseases as foot-and-mouth disease and rinderpest, and inspection of import animals to provide for identification of purebred animals for entry free of customs duty.
- b. Inspection of livestock offered for export and of facilities on transporting vessels to assure their safe transport.
- c. Control of interstate movement of livestock to prevent the spread of communicable diseases and to prevent cruelty in transit.
- d. Supervision of the preparation of veterinary biological products to assure their purity and potency, and administration of a marketing agreement and order designed to maintain adequate supplies of hog cholera virus and anti-hog cholera serum.
- e. Control and eradication of diseases in the field, such as tuberculosis, brucellosis, cattle fever ticks, cattle and sheep scabies, hog cholera and related swine diseases, dourine of horses, etc.
- f. Federal meat inspection under the Meat Inspection Act, the Horse Meat Act, and the Imported Meat Act, and regulations promulgated thereunder having for their purpose the production of a clean and wholesome meat supply for human consumption.

- g. Cooperation with Mexico in the control and eradication of foot-and-mouth disease, including related research in European laboratories and a program (conducted through the Production and Marketing Administration) for the purchase of canned meat and meat products in northern Mexico. Protective measures in the United States are also pursued which include patrol of the Mexican-United States border to prevent entry of animals susceptible to the disease or of any materials which might harbor the virus as well as strengthened inspections at public stockyards and in the field to detect immediately any possible introduction of foot-and-mouth disease in the United States.
- h. Inspection and certification of canned animal foods upon application of manufacturers, financed by fees covered into the Treasury.

The Bureau maintains a central office in Washington, D. C., but most of its work is conducted in the field. Its stations, substations and laboratories are located in 453 cities and towns in the United States and Territories, and at 35 cooperating agricultural experiment stations. Work is also conducted in the field in Mexico and at 3 European research laboratories. Employees are engaged in work on farms, ranches, ports of entry into the United States, meat packing establishments, public stockyards, establishments licensed under the Virus Serum Toxin Act, etc. On November 30, 1949, there were 7,280 full-time employees, 451 of whom were in Washington and the remainder in the field; and 339 part-time employees who work intermittently in the field.

	<u>Estimated, 1950</u>	<u>Budget estimate, 1951</u>
Appropriated Funds	\$23,223,100	\$23,896,700

Summary of Appropriations, 1950 and Estimates, 1951  
(Amounts Shown Include Estimated Pay Adjustment Supplementals)

[Note.--Amounts in brackets [ ] are not included in totals.]

Item	Total estimated available, 1950 <u>a/</u>	Budget estimates, 1951	Increase (+) or Decrease (-)
Salaries and expenses:			
Animal husbandry .....	\$1,331,300:	\$1,562,000:	+\$230,700
Diseases of animals .....	1,095,000:	1,271,700:	+176,700
Animal disease control and eradication .....	7,953,800:	8,104,000:	+150,200
Meat inspection .....	12,843,000:	12,959,000:	+116,000
Total, salaries and expenses	23,223,100:	23,896,700:	+673,600
Marketing agreements, hog cholera virus and serum <u>b/</u> ....	[48,800]:	[49,300]:	[+500]
Eradication of foot-and-mouth and other contagious diseases of animals and poultry .....	<u>c/</u>	<u>c/</u>	
Total, direct annual appropriation .....	23,223,100:	23,896,700:	+673,600

- a/ Adjusted for comparability with the appropriation structure proposed in the 1951 Budget Estimates.
- b/ Transfer from appropriation made by section 12(a) of the Agricultural Adjustment Act, approved May 12, 1933.
- c/ In addition to prior year balances of \$5,928,887, available in fiscal year 1950, advances of funds are being made from the Commodity Credit Corporation during the fiscal year 1950, pursuant to the provisions of the 1950 Agricultural Appropriation Act, authorizing the Secretary of Agriculture to transfer from any funds available to the Department amounts necessary to finance the foot-and-mouth disease eradication program, subject to later reimbursement when an appropriation therefor is made. Pending the availability of information necessary to determine the requirements of the program in 1950 and 1951, and the submission of supplemental estimates therefor, the Budget Estimates propose to continue the language authorizing the Secretary to transfer from other funds of the Department the amounts necessary for the eradication of the disease.

(over)



(a) Animal Husbandry

Appropriation Act, 1950 .....	\$1,302,000
Anticipated pay adjustment supplemental, 1950 .....	29,300
Base for 1951 .....	1,331,300
Budget Estimate, 1951 .....	1,562,000
Increase .....	<u>+230,700</u>

SUMMARY OF INCREASES AND DECREASES, 1951

To place the research program on an effective operating basis including repairs, reconditioning and replacement of facilities and equipment .....	+290,580
To place on a full-year basis in 1951, pay adjustments under Public Law 429 which were in effect for only a part of fiscal year 1950 .....	+9,400
Elimination of non-recurring item provided in the 1950 Agricultural Appropriation Act for completion of liquidation of Agriculture Remount Service .....	-50,280
Decrease resulting from closing out the horse breeding work at Middlebury, Vermont .....	-19,000

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950 (estimated)	Increase or decrease		1951 (estimated)
			P.L. 429 adjustment	Other	
1. Swine husbandry investigations ....	\$184,220	\$188,960	+\$1,543	+\$31,300(1)	\$221,803
2. Sheep and goat husbandry investigations .....	206,715	205,193	+1,439	+66,200(1)	272,832
3. Horse and mule husbandry investigations .....	54,332	56,337	+560	-19,000(2)	37,897
4. Beef cattle husbandry investigations ..	249,607	239,686	+1,835	+135,580(1)	377,101
5. Dual-purpose cattle husbandry investigations .....	92,049	86,317	+692	- -	87,009
6. Poultry husbandry investigations ....	398,740	411,360	+1,897	+35,500(1)	448,757
7. Fur animal husbandry investigations .....	88,870	93,167	+1,434	+22,000(1)	116,601
8. Liquidation of Agriculture Remount Service .....	- -	50,280	- -	-50,280(3)	- -

(Continued on next page)

Project	1949	1950 (estimated)	Increase or decrease		1951 (estimated)
			P.L. 429 adjustment	Other	
9. Repairs, recondi- tioning, and improve- ment of facilities at field stations and replacement of worn-out equipment	211,500:	- -	- -	- -	- -
Total pay adjustment costs, Public Law 429 .....	- -	[29,300]	[+9,400]	[+300]	[39,000]
Unobligated balance ..	2,709:	- -	- -	- -	- -
Total available ...	1,488,742:	1,331,300:	+9,400(4):	+221,300	1,562,000
Transferred to "Sal- aries and expenses, Office of Informa- tion, Department of Agriculture" .....	+9,758:	- -			
Transfer in 1950 esti- mates from "Printing and Binding, Depart- ment of Agriculture":	-17,000:	- -			
Anticipated pay ad- justment supplement- al .....	- -	-29,300:			
Total appropria- tion or estimate:	1,481,500:	1,302,000:			

#### INCREASES OR DECREASES

The increase of \$230,700 in this item in 1951 is composed of the following:

- (1) Increase of \$290,580 under projects 1, 2, 4, 6, and 7 to place research program on a more effective operating basis, including repairs, reconditioning, and replacement of facilities and equipment at field stations.

Need for Increase. Important research programs under way at Animal Husbandry field stations are being hampered materially by lack of adequate facilities. In many instances, research studies require specialized conditions and uniform physical facilities over long periods. Optimum working conditions contribute greatly to maximum results. Most of the Animal Husbandry stations have been in operation for many years; many of the buildings and facilities are old or obsolete; and their maintenance and repair is a constant problem. Funds to undertake a rehabilitation, replacement, and general plant maintenance program to keep stations in suitable working condition are urgently needed.

The Federal Government has a considerable investment in these stations, which should be protected from undue deterioration by a planned program of maintenance. Due to higher costs for labor, material, and equipment normal provision for maintenance has not been sustained. High operating expenses, including feed costs for valuable research animals, have limited reconditioning

work to emergency measures, except when non-recurring items of \$129,400 in the fiscal year 1948 and \$211,500 in the fiscal year 1949 were made available for urgent repairs. Cost increases, between submission of the estimates and the availability of funds, in both years, reduced materially the repair work that could be accomplished.

As provided for in detail included under the "Plan of Work", funds are urgently needed for painting buildings, improving roads and drainage, and replacement of equipment, particularly trucks and passenger motor vehicles which receive hard wear under farm and range conditions. Field stations are extensive and most operations require hauling of personnel, livestock, feed and supplies over rough terrain. There is also urgent need for pasture development and improvement of existing pastures, in order to maintain experimental animals under the conditions recommended by the Bureau to producers as good farm practices. Many pastures require annual fertilization for maximum production, and even permanent pastures must be reseeded every fifth or sixth year. Fencing is an item requiring constant repair. The upkeep of hundreds of miles of interior and boundary fences is expensive. Present costs of materials and labor for new fencing are over \$1200 per mile, in contrast to a cost of \$800 per mile ten years ago.

Plan of Work. In order to remedy this situation it is recommended that funds be made available which could be used for urgent repairs, replacements, and reconditioning at field stations for the fiscal year 1951 and in successive years for additional work, including replacements of buildings, plant maintenance, etc. Field stations would be placed on an efficient operating basis under a schedule of planned repair and renovation. Proposed distribution of such funds for the fiscal years 1951 and 1952 are as follows:

Fiscal Year 1951 Distribution

Beltsville, Maryland

Replacement of 6 boar houses .....	\$5,000	
Pasture development, including clearing, drainage, service lanes, extension of water lines, fencing, preparation for seeding, fertilizing, and seeding pasture land for experimental beef cattle, sheep, swine, and poultry (approximately 250 acres) .....	50,000	
Painting of station buildings (6 major buildings, 2 poultry buildings, and 25 colony poultry houses) ...	27,000	
Repair of station buildings and facilities, such as replacing eye-beam in meats laboratory, replacing and repairing barn roofs, etc. ....	40,500	
Construction of two sheep silos .....	3,000	
Replacement of 4 trucks .....	6,000	
Replacement of passenger motor vehicle .....	1,000	
Fencing repair and replacement .....	14,000	146,500



Miles City, Montana

Pasture and forage crop improvement, including repairs to water and irrigation systems .....	\$10,200	
Repair and painting of station buildings and facilities .....	10,200	
Replacement $1\frac{1}{2}$ ton truck .....	2,000	
Replacement 1 ton truck .....	<u>1,500</u>	23,900

Dubois, Idaho

Repairs to roads and trails .....	6,000	
Repair and painting of station buildings and facilities .....	5,500	
Repair, replacement, and extension of fences, corrals, and water facilities .....	7,500	
Pasture development and reseeding .....	1,500	
Replacement of passenger motor vehicle .....	1,000	
Replacement of $\frac{3}{4}$ ton truck .....	1,500	
Heavy semi-trailer truck (replacement of $1\frac{1}{2}$ ton truck) .....	<u>4,500</u>	27,500

Brooksville, Florida

Repairs to water system, including extensive repairs to 100,000 gallon overhead tank .....	8,000	
Pasture renovation and improvement, including fencing repair and replacement .....	4,180	
Repair and painting of station buildings and facilities .....	2,500	
Replacement of passenger motor vehicle .....	<u>1,000</u>	15,680

Jeanerette, Louisiana

Repair and extension of fender system to bridge and repairs to bridge .....	8,000	
Renovation and reseeding of pastures, including fencing replacement and repair and drainage .....	15,000	
Repair and painting of station buildings and facilities .....	11,000	
Replacement of $1\frac{1}{2}$ ton truck (dual wheels) .....	<u>2,000</u>	36,000

Glendale, Arizona

Repair and painting of station buildings and facilities .....	6,000	
Replacement of pick-up truck .....	<u>1,500</u>	7,500

Front Royal, Virginia

Repair to fencing, including conversion from horse-type fence to cattle-type fencing .....	8,000	
Repair and painting of station buildings and facilities .....	2,000	
Replacement of truck .....	<u>1,500</u>	11,500

Fontana, California

Renovation of rabbit hutches, water, and cooling systems .....	\$5,000	
Repair and painting of station buildings and facilities .....	5,500	
Replacement of pick-up truck .....	1,500	
Replacement of passenger motor vehicle .....	<u>1,000</u>	13,000

Saratoga Springs, New York

Repair and painting of station buildings and facilities .....	<u>9,000</u>	9,000
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Total Estimates, Fiscal Year 1951 ..... 290,580

Fiscal Year 1952 Distribution

Beltsville, Maryland

New fencing (\$12,000) and fencing replacement (\$10,000) .....	\$22,000	
Establishing new service lanes (\$5,000) and maintaining present service lanes (\$2,500) .....	7,500	
New water line .....	15,000	
Establishing new service water lines to pastures (\$12,500) and repair on old lines (\$11,250) .....	23,750	
Pasture development and maintenance (\$15,000 annual pasture maintenance, including seeding and preparation, \$3,000 annual fertilizer application old pasture, \$40,000 for development of approximately 200 acres of new pastures) .....	58,000	
Repair and painting of station buildings, equipment, and facilities .....	41,500	
Replacement of automotive equipment (3 trucks) .....	5,000	
Construction of 2 cattle sheds .....	4,250	
Construction of 2 sheep silos .....	<u>3,000</u>	180,000

Miles City, Montana

Pasture and irrigation development and renovation ....	13,200	
Repair and painting of station buildings, equipment and facilities .....	13,400	
Replacement of 1 truck .....	<u>1,800</u>	28,400

Dubois, Idaho

Construction of new machinery shed .....	7,500	
Construction and repair of roads and trails .....	5,000	
Pasture and irrigation development and renovation ....	6,000	
Repair and painting of station buildings, equipment and facilities .....	9,700	
Replacement of 1 truck .....	<u>1,800</u>	30,000

Brooksville, Florida

Pasture development and renovation .....	6,180	
Repair and painting of station buildings, equipment and facilities .....	4,200	
Replacement of 1 truck .....	<u>1,800</u>	12,180

Jeanerette, Louisiana

Pasture development and renovation .....	\$4,000	
Repair and painting of station buildings, equipment and facilities .....	4,200	
Replacement of 1 truck .....	<u>1,800</u>	10,000

Glendale, Arizona

Repair and painting of station buildings, equipment and facilities .....	<u>5,000</u>	5,000
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Front Royal, Virginia

Extension and replacement of cattle fences .....	8,000	
Repair and painting of station buildings, equipment and facilities .....	5,200	
Replacement of 1 truck .....	<u>1,800</u>	15,000

Fontana, California

Repair and painting of station buildings, equipment and facilities .....	<u>5,000</u>	5,000
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Saratoga Springs, New York

Repair and painting of station buildings, equipment and facilities .....	3,200	
Replacement of 1 truck .....	<u>1,800</u>	5,000

Total Estimate, Fiscal year 1952 ..... 290,580

(2) The Budget estimates propose a decrease of \$19,000 under the project "Horse and mule husbandry investigations" due to the discontinuance by December 31, 1950, of research at the U. S. Morgan Horse Farm, Middlebury, Vermont on breeding of light horses. The station at Middlebury comprises 987 acres, about half of which were donated by Joseph Battell in 1907 for investigations of Morgan horses. The Morgan horse has been used for experimental studies, the results of which are applicable to horses of all light breeds and much of which has been applied to draft breeds as well. The particular field of study was the heritability of performance characteristics, which provided a basis for the application of genetics to horse breeding.

With the closing of this work, horse and mule activities will be limited to a small nutrition project at Beltsville, Maryland, a cooperative project with mules in Tennessee and to the answering of routine correspondence with farmers and others. Although horse numbers have declined materially in recent years in the United States, numerous requests for information on them are received each year since they continue to be maintained on 60 percent of the farms and ranches in this country and have an inventory value in excess of \$300,000,000.



There has been a small project on sheep breeding and feeding at the Middlebury Station; however, the station would probably be disposed of and the sheep research consolidated with work elsewhere, unless support were obtained from New England States for maintaining the station on a cooperative basis for research on other livestock or on the role of sheep in farming operations in that region. The alternatives as to disposition of the station will be investigated prior to a final determination.

(3) A decrease of \$50,280 under the project "Liquidation of Agriculture remount service" due to the closing of agriculture remount activities. On July 1, 1948, four stations of the Army Remount Service were transferred to the Department for breeding work with light horses. There was curtailment of the program early in the fiscal year 1949, reflecting changes necessary to operate within available appropriated funds. No provision was made in the 1950 estimates for continuation of the service; however, the 1950 Appropriation Act provided for discontinuance of the program by December 31, 1949, with the proviso that livestock be sold by bid, public auction, or through negotiated sales which would give preference to persons having custody of the animals or to others in the same locality. Prior to this action by Congress steps had been taken to sell many of the horses, mares, and young stock quartered at the several stations.

Through negotiated sales, 243 stallions were left in the hands of custodians and 32 others were placed with new owners. The policy was followed of bringing the most valuable stallions to the remount stations for sale at public auction and 93 were sold in this manner. In 2 cases sealed bids were accepted. Inclusive of mares and young stock, 440 horses were sold in the period July 1, 1949 to December 1, 1949 for \$146,183.50.

In total, the liquidation of the Remount Service during the period January 1, 1949 to December 31, 1949 involved disposition of 726 animals and proceeds of sale amounting to \$399,878.

The station at Pomona, California, was transferred to the W. K. Kellogg Foundation, Incorporated, in accordance with Public Law 88, approved June 4, 1949. The other three stations are being operated in cooperation with the States of Virginia, Nebraska, and Oklahoma in beef cattle research programs.

(4) Increase of \$9,400 to place on a full-year basis in 1951 pay adjustments under P. L. 429 which were in effect for only a part of the fiscal year 1950.

# ANIMAL HUSBANDRY

## Alternate Project Statement

Project	1949	1950	1951	Increase (+) or Decrease (-)	Estimated	1951			Grand Total
						Section (10)(a)	Section 10(b)	Special: Research: Fund	
1. Swine husbandry investigations .....	184,220	188,960	221,803	+32,843	88,000	26,800	78,400		415,003
2. Sheep and goat husbandry investigations .....	206,715	205,193	272,832	+67,639	68,200	4,200	101,550		446,782
3. Horse and mule husbandry investigations .....	54,332	56,337	37,897	-18,440					37,897
4. Beef cattle husbandry investigations .....	249,607	239,686	377,101	+137,415	53,600	195,100	248,700		625,801
5. Dual-purpose cattle husbandry investigations .....	92,049	86,317	87,009	+692	4,100	4,100	8,200		95,209
6. Poultry husbandry investigations .....	398,740	411,360	448,757	+37,397	80,200	100,700	147,350		777,007
7. Fur animal husbandry investigations .....	88,870	93,167	116,601	+23,434	5,400		5,400		122,001
8. Liquidation of Agriculture Remount Service .....	--	50,280	--	-50,280					--
9. Repairs, reconditioning, and improvement of facilities at field stations and replacement of worn-out equipment .....	211,500	--	--	--					--
10. Pay adjustment costs .....	--	29,300	39,000	+9,700	7,000	4,900	11,900	8,100	59,000
Unobligated balance .....	2,709	--	--	--	--	--	--	--	--
Total available .....	1,488,742	1,331,300	1,562,000	+230,700	299,500	330,900	630,400	327,300	2,519,700

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Project	1949	1950 Estimated	Increase (-) or Decrease (-)	1951				Grand Total
				Estimated	Section 10(a)	Section 10(b)	Total	
							Special : Research Fund :	
Transferred to "Salaries and expenses, Office of Information Department of Agriculture".....	+9,758	--						
Transfer in 1950 estimates from "Printing and binding, Department of Agriculture".	-17,000	--						
Anticipated pay adjustment supplemental:	--	-29,300						
Total appropriation or estimate.....	1,481,500	1,302,000						



## ANIMAL HUSBANDRY

## RMA Projects

Finan- cial Project : Project: No. : No. :	Project Title	1949	1950 :(estimated):	Adjustments for 1951 :P.L. 429:Contract:Other:(estimated)	1951
2 - 4 - 5	Section 10(a) Utilization research: Factors affecting the utilization of nutrients in forage	- -	20,150	\$150	20,300
1 - 4 - 6	Improvement in methods of cottonseed: oil extraction, development of new and improved products from cotton- seed and their evaluation	3,900	10,200	\$100	10,300
2	Developing and evaluating fabrics containing wool of known source and genetic origin	42,609	51,850	\$350	42,200
1 - 2 - 4 - 6 - 7	Relative advantages of utilizing feeds, both concentrates and forages: in pelleted and non-pelleted forms	- -	15,250	\$150	15,400
560	Utilization of wheat for livestock feeding	- -	5,000	- -	- -
1 - 2 - 4 - 6	Conversion of vegetable and animal byproducts, surpluses and wastes into new feed stuffs and the estab- lishment of their feeding values	19,837	20,400	\$300	27,200
1 - 2 - 4 - 510	Processing and utilization of edible meat byproducts	- -	19,150	\$150	19,300

a/ An adjustment of \$5,000 under project 560, "Utilization of wheat for livestock feeding" due to elimination of work on this project.

(continued on next page)

Finan- cial Project No.	Project No.	Project Title	1949	1950 (estimated)	Adjustments for 1951 P.L. 429:Contract:Other:(estimated)	1951
1 - 2 - 4 - 7	36	Processing in relation to preservation of quality and nutritive value of meats	52,202	67,250	15,048	67,800
6	37	Processing and quality retention of poultry meat and other poultry products and improved techniques for maintaining quality during storage	29,247	37,450	8,203	37,600
1 - 2 - 4 - 6 - 7	371	Improvements in utilization of mixed feeds by addition of amino acids, medicaments, hormones, enzymes and related feed adjuncts in the feeding of livestock	19,876	40,750	20,874	41,000
6	521	Egg candling: estimation of interior egg quality in the intact hen's egg in relation to grade standards	- -	18,150	18,150	18,400
	457	Prepackaging of animal and poultry products	51,500	- -	- -	- -
		Total, Section 10(a)	219,171	305,600	-3,500	299,500
		Section 10(b) Research other than utilization:				
4	38	Identification and propagation of genetically superior lines of beef cattle	108,012	161,950	53,938	163,200

Finan- cial Project : Project: No. : No. :	Project Title	1949	1950 :(estimated)	Adjustments for 1951 :P.L. 429:Contract:Other:(estimated)	1951
6	Hybridization for the genetic im- provement in economic qualities of poultry	63,699:	100,400	4300	100,700
1	Reducing death losses of young pigs	14,897:	25,250	450	25,300
2 - 4	Cause and prevention of death losses due to grass tetany and other causes in cattle and sheep pastured on grasses and small grains	4,075:	18,200	4100	18,300
4 - 5	Importance of continuous growth in beef cattle and the efficiency of utilization of feed	- -	20,300	4100	20,400
1 - 2 - 4	Regional research in livestock marketing	2,928:	3,000	- -	3,000
	Total, Section 10(b)	193,611:	329,100	41,800	330,900
	Total, RMA	412,782:	634,700	44,200	630,400

Special Research Projects

2	SRF-2-2: The development of breed and strains of sheep suitable to southwestern ranges and to the economic require- ments of the sheepman	13,215:	15,500	450	15,550
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b/ See Diseases of Animals for balance of project.

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Finan- cial Project: No.	RMA Project: No.	Project Title	1949	1950 (estimated)	Adjustments for 1951 Contract: Other: (estimated)	1951
2	SRF 2-116	Physiology and anatomy of reproduction and lactation in goats	8,864	10,400	7100	10,500
6	SRF 2-121	The mechanism of production, storage, and release of ovulation-inducing hormone from the anterior pituitary gland of the domestic hen	10,393	10,600	750	10,650
6	SRF 2-8	The endocrine physiology of egg production in domestic poultry	470	-	-	-
1	SRF 3-5	Regional research laboratory for the improvement of swine through the application of breeding methods	67,120	78,200	7200	78,400
2	SRF 3-6	Regional research laboratory for the improvement of sheep for western ranges through the application of breeding methods	69,800	74,900	7600	75,500
6	SRF 3-8	Regional research laboratory for the improvement of viability in poultry	152,474	135,400	71,300	136,700
		Total, Special Research Fund	322,336	325,000	72,300	327,300

CHANGE IN LANGUAGE

The estimates include a proposed change in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

Animal husbandry: For investigations and experiments in animal husbandry and animal and poultry feeding and breeding, and for carrying out the purposes of section 101 (b) of the Organic Act of 1944 (7 U.S.C. 429) authorizing cooperation with State authorities in the administration of regulations for the improvement of poultry, poultry products, and hatcheries, [\$1,302,000, including not to exceed \$50,000 (which shall be available for additional personal services in the District of Columbia) for liquidation of the Agriculture Remount Service, on or before December 31, 1949, which amount shall remain available for care of the real property until the Department of Agriculture is relieved of responsibility therefor, the livestock to be sold by bid, public auction, or through negotiated sales with preference in negotiated sales to the persons having custody of the animals or to others in the same locality: Provided further, That the authority of section 3 of the Act of April 21, 1948, shall be continued until December 31, 1949 ] \$1,562,000.

This change in language is proposed to delete the non-recurring provision included in the 1950 Agricultural Appropriation Act providing for the liquidation of the Agriculture Remount Service by December 31, 1949.





## STATUS OF PROGRAM

Current activities: Animal husbandry research is directed toward more efficient breeding, feeding, and management of all livestock except dairy cattle, and includes poultry and fur animals. The program also includes research on the factors affecting the production of high quality products and their processing and preservation. Cooperative relationships are maintained with State agricultural experiment stations, State extension services and other agencies.

Breeding investigations include studies of the application of fundamental principles of genetics in the development of superior strains and crossbred types of farm livestock and poultry, and the study of new methods of identifying superiority, such as record of performance and progeny tests.

Feeding investigations are concerned with nutritional requirements of animals for high levels of reproduction, lactation, growth, or fattening and including production of meat, milk, eggs, wool and fur and the measurement of nutritive properties of feedstuffs in order to develop the best methods of using feeds to obtain maximum results.

Management investigations include studies of grazing, shelter, etc.

There are on American farms approximately 8 million horses and mules, 41 million cattle raised primarily for meat, 57 million hogs, 32 million sheep, 500 million chickens, 30,000 foxes, 450,000 minks and 2 million rabbits. Some of these animals are yielding returns considerably below production costs and only a very small percentage are showing the profits which easily could be realized by use of better breeding, feeding and management practices. Solution of the many critical problems will improve the economy of farm operations and lead to a more abundant supply of uniformly better animal products for the consumer.

Examples of Recent Progress: Among recent accomplishments are the following:

1. Swine husbandry:

- a. Line-cross pigs sired by Chester White-Landrace boars, as well as those sired by Poland China-Landrace boars as reported last year, excelled line-cross pigs sired by boars of other lines tested at Beltsville. These two lines have an 8-year average yield of about 49 percent of slaughter weight as preferred cuts--ham, loin, bacon, shoulder and shoulder butt, the highest yield of lines tested at Beltsville. Average market hogs yield about 45 percent preferred cuts.

- b. Litters produced from cross matings of the Beltsville lines averaged 7.5 pigs at weaning and excelled litters produced by matings within lines by more than 1.5 pigs. This exceeds the national average by about one pig per litter.
- c. Pantothenic acid vitamin requirement of swine not met by long-stored feed. Good mature yellow corn, less than a year old, contains 4.5 mg. per pound, about the amount required by swine. Damaged corn, alfalfa held two years, and stored distillers' dried solubles, showed heavy loss in pantothenic acid content.
- d. Hampshire-Landrace line breeders establish registry as "Montana No. 1." This line has weaned an average of 8.1 pigs per litter over 9 years of selective breeding. This indicates the widespread recognition of the practical worth of the new strain developed at the U. S. Range Livestock Experiment Station, in cooperation with the Montana Agricultural Experiment Station.

2. Sheep and goat husbandry:

- a. Mouton of high quality produced by fine wool lamb pelts. Quality of mouton decreases as type of wool becomes coarser and weight of pelt heavier. Pelts from lambs of smooth skinned Merino and Rambouillet types are most suitable.
- b. Belly wool is an indication of fleece yield. Selective breeding for increased belly wool results in increased grease and clean fleece weights.
- c. Crossbred Hampshire-Shropshire yearling ewe fleeces heavier than parental purebred stocks. Purebred Hampshire yearling ewe fleeces yielded an average of 3.1 pounds of clean, dry wool, Shropshire yearlings 3.6 and Hampshire x Shropshire crossbred yearlings about 4.5 in the experiment.
- d. Range ewes winter satisfactorily on alfalfa hay. Grain supplements to alfalfa hay as a winter diet for range ewes failed to increase lifetime lamb production and increased average clean fleece weight by only 0.09 pounds at the U. S. Sheep Experiment Station, Dubois, Idaho.

3. Beef and dual-purpose cattle husbandry:

- a. Beef cattle make winter gains on newly introduced grasses in Florida. Grazing studies in cooperation with the Soil Conservation Service in Florida yielded gains of 77 pounds per head on dry cows grazing Pensacola Bahia during the period September through November when native ranges did not furnish feed of sufficient quality to maintain body weight.
- b. Urinary calculi in fattening steers controlled by use of supplementary phosphorus. With the addition of 100 grams of bonemeal or 26 cc. of 75 percent phosphoric acid per

animal per day fed with the basic ration of milo grain, sorghum silage and cottonseed meal, the hazard of calculi formation is greatly reduced without interfering with rate of gain or finish. Milo grain apparently contains a factor predisposing to calculi formation.

c. Crossing purebred beef cattle produces superior steers. Systematically crossing purebred Angus, Shorthorn and Hereford cattle at the U. S. Range Livestock Experiment Station, in cooperation with the Montana State Agricultural Experiment Station, produced steers which materially outgained purebred steers sired by the same bulls. Discrimination against mixed colors, by feeders and buyers, limits application of results.

d. Maternal grandsires influence weaning weight of beef calves. The heritable effect on weaning weight of beef calves for the maternal grandsire was found to be about the same as the heritable effect of the sire. Apparently selection of sires may materially affect weaning weight of the second generation through milk production of the dam.

#### 4. Poultry husbandry:

a. Summer eggs deteriorate more rapidly than fall and winter eggs. Thick albumen, essential to high cooking quality in eggs, breaks down more rapidly when summer laid eggs are held at constant temperatures in storage than is the case in fall and winter laid eggs held at the same constant temperature.

b. Breast development of meat chickens improved by selective breeding. Lines of Cornish and New Hampshire chickens with broader, plumper breasts than is generally characteristic of these breeds have been developed by family selection for breast conformation at broiler age.

c. "Unidentified vitamin" required by poultry demonstrated to be vitamin B<sub>12</sub>. This vitamin, essential to optimal growth and reproduction, must be added to diets depending chiefly on oil meals as protein sources. Fish offal, certain fermentation products and cow manure are among the sources of the vitamin.

d. Hatching eggs and chicks resistant to high altitude and rapid altitude changes. Both domestic and foreign air shipments of hatching eggs and chicks are increasing. Tests have demonstrated that chicks can withstand the low atmospheric pressure characteristic of 20,000 feet altitude for at least 12 hours and changes as great as 5,000 feet per minute. This information is of value in preventing loss of hatchability due to atmospheric effects.

e. Gossypol content limits use of cottonseed meal in poultry feeding. Satisfactory hatching eggs can be produced on diets containing up to 100 percent cottonseed meal if the free gossypol content does not exceed 0.12 percent. However, even small amounts of



gossypol in the diet of laying hens cause yolk darkening when the eggs of such hens are stored. Gossypol content of cottonseed meal varies with the effectiveness of processing.

- f. Pullorum incidence in poultry breeding flocks reduced. Pullorum disease is egg transmitted and a principal cause of mortality during brooding. Incidence of the disease among breeding flocks has been reduced through cooperative work with the States under the National Poultry Improvement Plan from 2.3 percent among 24,000,000 birds tested in 1944-45 to 0.94 among 26,000,000 breeding birds in 1948-49. The percentage of hatcheries qualifying for the non-tolerance classes (U. S. Pullorum-Passed and U. S. Pullorum-Clean) has increased from 14.1 percent in 1944-45 to 51.6 percent in 1949. The status of work under the National Poultry and Turkey Improvement Plans is shown by the following table:

Item	1946	1948	1949
<b>NATIONAL POULTRY IMPROVEMENT PLAN</b>			
States .....	47:	47:	47
Hatcheries .....	3,952:	4,326:	4,438
Egg capacity of hatcheries .....	259,453,000:	331,741,000:	346,294,000
Hatching egg supply flocks .....	92,324:	97,363:	93,373
Birds in breeding flocks .....	24,904,000:	27,266,000:	26,844,598
U.S.R.O.P. (U.S. Record of Performance):			
flocks .....	471:	464:	1/
Birds entered in trapnest flocks ....	211,669:	215,198:	1/
Females in U.S.R.O.P. matings .....	62,255:	71,684:	1/
Average percentage pullorum reactions:			
(first test) .....	1.84:	1.18:	0.94
<b>NATIONAL TURKEY IMPROVEMENT PLAN</b>			
States .....	30:	45:	45
Hatcheries .....	505:	675:	744
Flocks .....	4,317:	2,117:	3,224
Birds .....	2,342,133:	1,095,938:	1,849,907
U.S.R.O.P. flocks .....	37:	66:	61
Single-tom matings .....	266:	742:	767
Candidates trapped .....	3,387:	9,527:	9,538
Average percentage pullorum reactors :			
(first test) .....	1.43:	0.74:	0.51

1/ Data not yet available.

5. Fur animal husbandry:

- a. Cooked potatoes, when free of sprouts, can be used up to 50 percent of the ration for feeding foxes in captivity and thus cheapen food costs. Rations containing potatoes with sprouts proved unsatisfactory, due to a poisonous alkaloid they contained which reduced the palatability of the ration.
- b. Salmon offal sucessfully substituted for whole fish as feed for mink. Seventy-five percent canned salmon offal, principally heads, tails and viscera, substituted for frozen whole fish in tests at the Experimental Fur Station, in cooperation with the University of Alaska at Petersburg, Alaska, produced satisfactory mink pelts at reduced feed cost.
- c. Mutation mink produced by selective gene combinations. Color phases are of commercial importance in mink. They depend for their action on 12 different color genes. Research in cooperation with the University of Wisconsin indicates that particular color phases depend on the effect of 2 among the 12 color genes. For example, when gene pairs for platinum and brown eyed pastel are brought together in the same animal, platinum blonde results.
6. Receipts: During the fiscal year 1949 \$198,986 was deposited in miscellaneous receipts of the Treasury from the sale of livestock and livestock products and agricultural products which had served their purpose for investigational work.





(b) Diseases of Animals

Appropriation Act, 1950 .....	\$1,073,000
Anticipated pay adjustment supplemental, 1950 .....	22,000
Base for 1951 .....	1,095,000
Budget Estimate, 1951 .....	1,271,700
Increase .....	<u>+176,700</u>

SUMMARY OF INCREASES, 1951

To place the research program on a more effective operating basis including repairs, reconditioning, and replacement of present facilities and equipment and the construction of new facilities and buildings .....	+143,100 ✓
To collect data on the incidence of animal diseases and to analyze its significance .....	+25,750 ✓
To place on a full-year basis in 1951, pay adjustments under P.L. 429 which were in effect for only a part of fiscal year 1950.....	+7,850

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950 (estimated)	Increase or decrease		1951 (estimated)
			P.L. 429 adjustment:	Other	
1. Investiga- tions on brucellosis (contagious abortion of livestock) ..	\$335,658:	\$322,052:	+\$2,475:	- -	\$324,527
2. Investiga- tions of in- fectious dis- eases of live- stock and poultry caused by bacteria and fungi, other than brucellosis .	135,493:	137,092:	+770:	+80,642(1):	218,504
3. Investiga- tions of in- fectious dis- eases of live- stock and poultry caused by viruses ....	149,290:	150,768:	+1,126:	+7,250(1):	159,144

(Continued on next page)

Project	1949	1950 (estimated)	Increase or decrease		1951 (estimated)
			P.L. 429 adjustment	Other	
4. Investiga- tions of non- infectious diseases of livestock and poultry .....	81,242:	59,225:	+613:	- -	59,838
5. Investiga- tions of protozoan parasites of livestock and poultry, in- cluding coccidiosis .	107,537:	88,104:	+618:	+25,000(1):	113,722
6. Investiga- tions of worm parasites of livestock and poultry, such as tapeworms, flukes, and roundworms ..	81,655:	86,715:	+626:	+19,500(1):	106,841
7. Investiga- tions of mis- cellaneous parasites of livestock and poultry .....	57,206:	58,745:	+504:	- -	59,249
8. Investiga- tions of treatments for parasites of livestock and poultry .....	76,138:	135,516:	+549:	+10,708(1):	146,773
9. Investiga- tions of dis- eases and parasites of fur animals .	50,351:	56,783:	+569:	- -	57,352
10. Investiga- tions of the incidence of animal dis- eases .....	- -:	- -:	- -:	+25,750(2):	25,750

(Continued on next page)

Project	1949	1950 (estimated)	Increase or decrease		1951 (estimated)
			P. L. 429 adjustment	Other	
11. Repairs, re- conditioning and improve- ment of faci- lities at the Agricultural Research Cen- ter for animal disease and zoological in- vestigations	50,000	- -	- -	- -	- -
Total pay adjust- ment costs,					
Public Law 429:	- -	[22,000]	[+7,850]	[+1,642]	[31,492]
Unobligated balance .....	6,408	- -	- -	- -	- -
Total avail- able ....	1,130,978	1,095,000	(3) +7,850	+168,850	1,271,700
Transferred to					
"Salaries and expenses, Office of In- formation, De- partment of Agriculture"	+22	- -			
Transfer in 1950: estimates from:					
"Printing and binding, De- partment of Agriculture"	-18,000	- -			
Anticipated pay adjustment supplemental	- -	-22,000			
Total estimate or appropria- tion .....	1,113,000	1,073,000			

#### INCREASES

The increase of \$176,700 in this item for 1951 is composed of the following:

(1) Increase of \$143,100 under projects 2, 3, 5, 6, and 8 to place the research program on a more effective operating basis, including repairs, reconditioning, and replacement of present facilities and equipment, and the construction of new facilities and buildings.



Need for Increase: Infectious, non-infectious, and parasitic diseases of livestock exact a heavy annual toll from the livestock, meat, and poultry industries of this country. Although a great part of the progress made in lessening such losses has resulted from research work carried on under this item, mounting costs during the past ten years have forced sharp curtailments in important research and even abandonment of some work.

Since 1940 the cost of research has increased tremendously, both in salaries for qualified research personnel and in operating costs, including the purchase, maintenance and feeding of research animals, the repair and upkeep of buildings, and the replacement of equipment. Grain feed, hay, and straw, and supplies, materials, and equipment such as glassware, chemicals, optical equipment, etc., have doubled in price. Numbers of experimental animals have been reduced far below those needed to secure adequate information, thereby making it necessary to repeat experiments for several years in succession to accumulate sufficient data for development of better control measures which farmers and poultrymen can apply to further reduce losses among their livestock and poultry.

To restore research to a more effective operating basis requires the employment of additional research personnel, maintenance of larger numbers of experimental animals for speeding up research, and the repair, reconditioning, and replacement of facilities and equipment at the pathological and zoological stations at Beltsville, Maryland, including attention to problems of general plant maintenance. Field pens, a brooder house, and a storage barn also are urgently needed.

More effective research on mastitis and pullorum needed. Mastitis is a serious problem to the dairy industry. It is caused by bacteria, some of which are harmful to man. Although the control of the disease has been greatly improved by use of new antibiotics, some bacteria are resistant and research for new control agents should be diligently pursued. Investigations should be carried on in selected herds in the field for more critical studies of the causative agent or agents and the complicating factors responsible for the disease.

Pullorum disease is the most widespread disease of poultry. Variant strains of Salmonella pullorum have complicated the diagnosis of this disease by use of present standard antigens. This variant problem is a serious complication to the pullorum phase of the National Poultry Improvement Plan. With present funds only limited investigations are possible on variant strains. Laboratory and field work in isolating such strains should be undertaken at once in order that studies of the disease caused by variant strains can be initiated and suitable antigens developed which will be of practical field application for the detection of all strains of Salmonella pullorum.

Work on disinfectants, because of curtailed funds, is limited to special disease problems as they arise. Disinfectants are of such fundamental importance in controlling and eradicating disease that Bureau regulations not only require disinfection under certain conditions but prescribe the disinfectant to be used and the manner of its use. Selection of the disinfectants now used in official work was based upon bacteriological

and chemical studies. Since the official disinfectants were selected, new products, such as quaternary compounds and chlorinated phenols, have been developed, some of which appear in preliminary tests to possess certain advantages over the official products. However, before the newer products can be recommended for official use it will be necessary to study their chemical and bactericidal properties, to determine conditions influencing their effectiveness, and to develop methods of chemical control.

Lack of minimum facilities for many types of work hampers research program. Present pens are now used periodically for various disease projects. They are insufficient in number and are not constructed so that they can be disinfected readily. Time is lost and experimental results are jeopardized in waiting for facilities to be made available. Present poultry facilities are also entirely inadequate for raising a stock of normal birds for inoculation and control purposes required in research on poultry diseases. It is necessary to raise poultry flocks to insure that birds are free from disease or exposure, and of the same age, size, feeding, etc. Storage space for feed and equipment are either poor or entirely lacking. Feed is stored in dilapidated sheds not always weather-proof, and sometimes must be left in the open. Space is needed to store feed for current needs, as well as a reasonable reserve. Sheds now used are infested with mice and at times with rats, both of which are a potential source of spread of infection. In addition, there is urgent need of space to store equipment used seasonally, such as brooder hovers, brooder batteries, nests, feed and watering troughs, etc.

Plan of Work: To alleviate this situation funds requested would be used for employment of research personnel, maintenance and feeding of additional livestock and poultry, and for a general repair, reconditioning, replacement, and general upkeep program for the experimental plants at Beltsville, Maryland, used for pathological and zoological investigations. Funds would be allocated as follows:

Investigations of mastitis of cattle .....	\$10,400
Investigations of pullorum disease .....	13,392
Bacteriological and biochemic investigations of dips	17,600
Maintaining cattle, sheep and goats, swine, and poultry for zoological investigations, including purchase of grain feed, hay and straw (cattle and laboratory animals \$7,000, and feed, etc. \$15,000)	22,000
Repairs, reconditioning and replacements of facilities and equipment for zoological investigations (includes repairs to buildings, plumbing, electrical wiring, cattle pens, isolation quarters, fencing, service roads, trucks, tractors, other automotive equipment, and farm machinery, painting, resurfacing service roads, additional fencing, etc.) .....	25,208



Construction of 4 field pens for housing experimental cattle .....	8,000
Construction of 6 field pens for experimental poultry .....	4,500
Construction of brooder house to raise normal birds for research on poultry diseases .....	14,500
Construction of feed and equipment storage barn .....	27,500
Total estimate .....	<u>143,100</u>

The amount to be allocated in 1951 for construction of the field pens, brooder house, and storage barn would be used in 1952 and in each year thereafter for construction of 3 barns or hospital units for large animals until the 12 which are needed are built. Of the increase recommended, \$54,500 would be available each year for their construction. Each of these barns would cost slightly over \$18,000 and would house 9 to 24 animals. Each barn would be equipped with stalls or stanchions, water, electricity, concrete floors and stall separations, built-in-manure pits, septic tanks for disposal of effluents, etc.

(2) Increase of \$25,750 under the project "Investigation of the incidence of animal diseases" to collect data on incidence of animal disease and to analyze its significance.

Need for Increase: Disease contributes to the high cost of production of livestock and poultry because of death losses, failure of animals and birds to develop properly, waste of feed and labor, etc. In order to reduce such losses it is necessary to ascertain the extent of diseases and to control them by the best available means. Reliable and comprehensive data on the incidence of diseases of livestock now existing in this country are not now available from any source. Control efforts in consequence, lack adequate guidance. In addition, new livestock diseases appear from time to time and coordinated measures to prevent their spread are not undertaken until they have become a problem involving many States, largely because there is only fragmentary evidence of their extent. A recent example of this is hyperkeratosis of cattle, or "X" disease which during the past 5 years has become widespread. Its appearance first seemed to involve isolated cases. Only gradually did the fact of its existence in many States come to light.

A cooperative program for the collection, assembling, analyzing, and distribution of statistics on the incidence of disease would be of great value to the Bureau, State livestock sanitary authorities, animal disease research workers, livestock organizations, farmers, and others. A committee of the United States Livestock Sanitary Association has considered this need for several years and has recommended that a program be undertaken by the Bureau of Animal Industry for the collection of data on livestock diseases, with the collection of comprehensive data on morbidity and mortality as the ultimate goal.

Plan of Work: The collection of data on the incidence of diseases in about three states on a cooperative basis would be the first step in the program planned for 1951. Information would be collected from farms and



ranches in cooperation with State livestock activities, sanitary officials, private veterinarians, or others. Reports would be assembled and analyzed in Washington monthly and annually and distributed to interested State officials, organizations, farmers, and others. A manual of methods of diagnosis and standard nomenclature would be prepared and distributed for field use.

The full-time services of personnel trained in livestock diseases and statistical work would be required for the initiation of such a program.

(3) Increase of \$7,850 to place on a full-year basis in 1951 pay adjustments under P. L. 429 which were in effect for only a part of the fiscal year 1950.

DISEASES OF ANIMALS  
Alternate Project Statement

Project	1949	1950 Estimated	Increase (+) or Decrease (-)	1951 Estimated	1951			Special Research Fund	Grand Total
					RMA				
					Section : 10(a)	Section : 10(b)	Total		
1. Investigations of brucellosis (con- tagious abortion of livestock) .....	335,658	322,052	+2,475	324,527	--	--	--	324,527	
2. Investigations of infectious diseases of livestock and poultry caused by bacteria and fungi, other than bru- cellosis .....	135,493	137,092	+81,412	218,504	--	12,700	12,700	26,400	257,604
3. Investigations of infectious diseases of livestock and poultry caused by viruses .....	149,290	150,768	+8,376	159,144	--	12,600	12,600	--	171,744
4. Investigations of non-infectious diseases of live- stock and poultry..	81,242	59,225	+613	59,838	--	75,800	75,800	--	135,638
5. Investigations of protozoan parasites of livestock and poultry including coccidiosis .....	107,537	88,104	+25,618	113,722	--	--	--	26,400	140,122
6. Investigations of worm parasites of livestock and poultry, such as tapeworms, flukes and roundworms ....	81,655	86,715	+20,126	106,841	--	46,100	46,100	26,400	163,941

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Project	1949	1950 Estimated	Increase (+) Decrease (-)	1951 Estimated	1951			Grand Total
					RMA			
					Section 10(a)	Section 10(b)	Total	
7. Investigations of miscellaneous parasites of live- stock and poultry..	57,206	58,745	+504	59,249	- -	- -	- -	59,249
8. Investigations of treatments for parasites of live- stock and poultry..	76,138	135,516	+11,257	146,773	- -	- -	- -	146,773
9. Investigations of diseases and para- sites of fur ani- mals .....	50,351	56,783	+569	57,352	- -	- -	- -	57,352
10. Investigations of the incidence of animal disease ....	- -	- -	+25,750	25,750	- -	- -	- -	25,750
11. Repairs, recondition- ing and improvement of facilities at the Agricultural Research Center for animal disease and zoological investi- gations .....	50,000 - - 6,408	22,000 - - - -	19,492 - - - -	31,492 - - - -	2,200 - - - -	2,200 - - - -	1,600 - - - -	35,292
12. Pay adjustment costs Unobligated balance ....								
Total available ....	1,130,978	1,095,000	+176,700	1,271,700	- -	147,200	147,200	1,498,100
Transferred to "Salaries and expenses, Office of Information, Depart- ment of Agriculture"...	+22	- -						

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Project	1941	1950 Estimated	Increase (+) or Decrease (-)	1951 Estimated	1951		
					RMA		
					Section: 10(a)	Total: 10(b)	Special: Research:Grand Fund :Total
-							
-			-				
Transfer in 1950 estimates from "Printing and binding, Department of Agriculture".	-18,000	--					
Anticipated pay adjustment supplemental.....	--	-22,000					
Total appropriation or estimate.....	1,113,000	1,073,000					

# RMA PROJECTS

## Diseases of Animals

Financial:	RMA	Project Title	1949	1950	Adjustments:
Project	Project				for 1951
No.	No.			(estimated):	P. L. 429 (estimated)
		Section 10(b) Research other than utilization:			
6	40	Sheep parasite investigations ....	24,514	30,450	+250
2 - 3	41 a/	Reducing death losses of young pigs:	14,897	25,200	+100
4	72	Toxicological effects on insecticides, fungicides and herbicides			
		on plants and animals .....	14,945	25,250	+150
4	537	Investigations on cause, prevention, and control of "X" disease or hyperkeratosis of cattle.....	- -	50,200	+200
6	539	Control of internal parasites of cattle in the South by management:	- -	15,300	+100
		Total, Section 10(b) .....	54,356	146,400	+800
		Total, RMA .....	54,356	146,400	+800

## Special Research Projects

2-5-6	SRE-3-7:	Study of the mechanism of infection			
		in the contagious, infectious, and parasitic diseases of domestic animals and poultry, and methods of control .....	80,100	78,500	+700
		Total, Special Research Fund .....	80,100	78,500	+700

a/ See Animal Husbandry for balance of project.

CHANGE IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

Diseases of animals: For scientific investigations of diseases of animals, and for investigations of tuberculin, serums, antitoxins, and analogous products, [~~\$1,073,000~~] \$1,271,700, including not to exceed \$42,000 for the construction of a brooder house and a storage barn at the Agricultural Research Center.

This change in language is proposed to provide necessary authority for the construction of a brooder house and a storage barn at the Agricultural Research Center in accordance with the increase proposed in the estimates.



## STATUS OF PROGRAM

Current Activities: An extensive research program, involving cooperation with other Federal and State agencies, is conducted on methods of diagnosis, cause, prevention, treatment and control of infectious, non-infectious and parasitic diseases of animals and poultry. It includes research on diseases caused by viruses, bacteria, fungi, and internal and external parasites; non-infectious diseases and pathological conditions caused by metabolic disturbances, tumors, unhygienic practices, etc.; and stock poisoning by plants. Parasites under study include coccidia, tapeworms, flukes, roundworms, cattle grubs, ox warbles, etc.

Infectious and non-infectious diseases are responsible for an annual loss in excess of 240 million dollars to livestock and poultry producers in this country. In addition, parasitic diseases are estimated conservatively to cause an annual loss in excess of 200 million dollars. The discoveries already made in the Department are saving producers millions of dollars annually. A notable recent contribution has been the discovery of strain 19 Brucella abortus, used widely in the production of antigen and vaccine for the field campaign for the eradication of brucellosis. The drug phenothiazine alone, discovered by Bureau parasitologists as a treatment for verminous diseases of domestic stock, is estimated as saving 12 million dollars annually to the livestock industry.

Examples of Recent Progress. Among recent accomplishments are the following:

1. Bacterial and fungus diseases:

- a. Brucella abortus has been recovered intermittently from the blood stream and urogenital tract of infected cattle for 97 and 100 weeks, respectively. Weekly examinations were made using improved methods of recovery. On the basis of earlier research it had been assumed that Brucella abortus disappeared within a few weeks after primary invasion following exposure. This finding is of importance in the control of brucellosis.
- b. Control measures have been drawn up for official certification of herds of swine free from brucellosis. These measures are the result of cooperative research and have been submitted to and adapted by the United States Live Stock Sanitary Association. If adopted by the various States, the establishment of clean herds will provide a nucleus from which herd replacements may be obtained. Under present conditions replacements often bring disease to clean herds.
- c. The use of the antibiotics bacitracin and subtilin for the control of mastitis in cattle resulted in a temporary reduction of bacteria in the milk and some improvement in clinical condition of the udder. The infection was eliminated in only 2 of the 42 affected quarters of the cows under treatment.

- d. Tests of presently available variant antigens for the detection of pullorum disease in poultry have proved they are not satisfactory. The presence of the variant pullorum infection in the United States has complicated the control of the disease since the standard antigen used for some years will not detect the variant type. Work on improvement of antigens will continue.
- e. Rats may act as mechanical carriers of fowl typhoid if they have contact with healthy birds during the time the rats are eating infected carcasses. However, tests made of feces of rats after they were fed birds dead of fowl typhoid indicate the disease is rarely spread from fecal material. Further information on the mode of spread of fowl typhoid and the closely related disease, fowl cholera, is essential for its control.

2. Virus diseases:

- a. Studies with phonolized hog cholera virus to determine the conditions and length of time under which it retains its ability to produce lasting immunity when used in the simultaneous treatment against hog cholera were continued. It may be held at  $-40^{\circ}\text{F.}$  for periods up to one year, then thawed and held for up to 60 days at  $32$  to  $40^{\circ}\text{F.}$  and retain ability for producing lasting immunity. Further confirmation of these findings should lead to more economical production of virus in establishments licensed to produce this virus under the Virus Serum Toxin Act. The present expiration dating of hog cholera simultaneous virus is 90 days.
- b. Horses surviving an attack of infectious anemia have been believed to be carriers of the virus for life, but two experimental horses known to be carriers have recently lost their carrier state at  $6\frac{1}{2}$  and  $7\frac{1}{2}$  years following the original date of infection. Subinoculations with the blood of these horses have failed to infect susceptible test horses. Both horses have also proved to be resistant when exposed to a virulent strain of virus. These findings open a new approach to the study of the immunology of the disease.
- c. Experiments with Newcastle disease live-virus vaccines have shown that they offer an improved means of control. However, they cause too severe a reaction as presently prepared to be accepted as a final solution to this disease problem. Further attempts must be made to develop strains of lower virulence which will at the same time retain their immunogenic property.
- d. Examination of a number of lots of commercially prepared live-virus Newcastle disease vaccine shows there is considerable variation in quantity of viable virus. This in-



dicates a need for standardization of all vaccines eventually licensed for distribution.

3. Non-infectious diseases:

- a. In view of a consistent difference in ability of cows to utilize feed carotene, higher than minimum levels are recommended for farm and ranch herd use. Some cows maintained for as many as five gestation periods on a level of 2 mg. of carotene per 100 pounds body weight have reared normal calves, but others have required twice this level. Fall and winter range in many areas fail to supply adequate amounts of carotene.
- b. The requirement of the growing pig for nicotinic acid for normal body functioning can be fully met by the use of protein feeds rich in tryptophane. Pigs adequately provided with tryptophane and nicotinic acid are apparently better able to withstand infections by Salmonella choleraesuis, the organism associated with development of necrotic lesions of the intestines usually found in necrotic enteritis. This indicates a need for determining if such is the case so that specific prevention and control measures can be made accordingly.

4. Diseases caused by parasites:

- a. Internal parasites increase cost of pork production in the South. Pigs infected with moderate to large numbers of parasites required 4 to 5 weeks longer than comparable pigs lightly infected to reach a weight of 225 pounds. Moreover, the heavily parasitized pigs required approximately 46 percent more protein and mineral supplement than pigs only lightly burdened with parasites.
- b. Heavy infestation of pigs with nodular worms causes inflammation of the intestine, bleeding from the intestinal wall, and marked thickening of the intestinal lining. In severe infections death may occur in 10 days.
- c. Whipworms in pigs produce intestinal bleeding and cause a chronic anemia. The hemoglobin, or red coloring matter of the blood, of heavily infected pigs was reduced by about 35 percent, in some cases, and was restored to normal following the elimination of the parasites.
- d. Studies at Federally-inspected establishments on 3,000 swine carcasses showed that 26 percent of hogs from the Corn Belt had livers that were extensively damaged by kidney worms, parasites formerly confined to the South. In similar studies on 500 hogs originating in the South 50 percent of the livers showed damage due to kidney worms.



5. Treatments for internal parasites:

- a. Investigations showed that sodium fluoride is the best treatment so far developed for removing intestinal roundworms from swine. From 0.75 to 1 percent of the chemical in the feed for one day is the indicated effective dose. The efficacy of this treatment is about 97 percent. Lower concentrations are relatively ineffective.
- b. Small amounts of borax, one of the cheapest of all chemicals, added to the drinking water of chickens prevented deaths from cecal coccidiosis. Although the weak concentration of the chemical in the drinking water retarded somewhat the growth of the birds, the net gain as a result of prevention of death losses was significant.
- c. An antiparasitic mash, containing small amounts of nicotine and phenothiazine, removed a large percentage of intestinal roundworms and cecal worms from chickens. Cecal worms transmit blackhead to poultry, a disease that is highly fatal to turkeys. The mash was found safe for use, left no traces of nicotine in the eggs, and did not adversely effect egg production.
- d. Hexachloroethane in suspension proved effective for the removal of stomach worms as well as liver flukes from cattle and calves. This treatment, introduced by the Bureau for the removal of liver flukes from cattle, is used quite extensively for that purpose in the Gulf Coast area and elsewhere. It has been found also to be nearly 100 percent effective, in most cases, in removing the common stomach worm, a serious pest of calves and young cattle in the Southern States.

6. Treatments for external parasites:

- a. A single spraying of cattle and calves with chlordane eliminated sucking lice. Seventy-five infested animals sprayed with a 0.5 percent suspension of this chemical remained free of lice during a post-treatment inspection period of 7 to 8 weeks. The treatment was nonirritating, relatively inexpensive, and nontoxic even to newborn calves.
- b. Spinose ear ticks, which localize deep down in the ears of cattle and cause severe irritation, were destroyed by 5 percent chlordane dissolved in pine oil. Reinfestation was prevented for 3 weeks. The chlordane treatment proved more effective than others, including benzene hexachloride, previously developed by the Bureau.
- c. In limited trials, benzene hexachloride proved effective in eradicating cattle scabies. Two sprayings, 12 days apart, with a relatively weak solution, eradicated sarcoptic scabies or barn itch from a herd of 150 purebred Shorthorns, with a

complete disappearance of all skin lesions in 90 days. A small number of cattle sprayed with a stronger solution only once were apparently cured, since no live mites were found on them during an observation period of about 5 months. Treatments now in use for the cure of sarcoptic scabies on cattle require at least 4 to 6 applications.

- d. Benzene hexachloride in very dilute solution destroyed sucking and biting lice on goats. Two flocks, numbering over 3,300 head, heavily infested with lice, were dipped only once and carefully examined 30 days later.
- e. Benzene hexachloride eradicated swine lice following a single dipping. A herd of over 200 swine of various ages was treated with this chemical and examined for a period of two months.
- f. Liquid preparations of benzene hexachloride applied to hen roosts kill poultry lice through the fumigant action of the chemical. Eggs and meat of chickens exposed to these fumes had no offensive odor or taste when eaten.
- g. Sprays proved ineffective in eradicating sheep ticks, even though effective antiparasitic chemicals were used. Over 2,000 sheep treated with sprays had about as many ticks 4 weeks after treatment as before treatment. Dipping in effective antiparasitic solutions resulted in eradication.
- h. Tartar emetic combined with glucose cured sheep suffering from filarial dermatosis, a serious skin disease of ovines that are pastured at high altitudes in some of the Rocky Mountain States. From 7 to 8 treatments, given one week apart to about 150 affected sheep, were required to produce complete healing of the lesions and destruction of the parasites which cause them. Untreated sheep affected with this disease are unfit for consumption and have no market value whatsoever.





Salaries and Expenses

The Budget estimates propose the consolidation of the current subappropriations "Eradicating Tuberculosis and Bang's Disease", "Inspection and Quarantine", and "Virus Serum Toxin Act" into a single subappropriation item to be known as "Animal Disease Control and Eradication". This proposal would simplify the appropriation structure and the administrative functions of the Bureau, and would in no way affect the scope or nature of the work being conducted. The following table compares the existing appropriation and project structure for these items with that proposed in the 1951 Budget estimates:

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PROPOSED CONSOLIDATION OF APPROPRIATION ITEMS OR REVISION OF ACTIVITY SCHEDULES

Salaries and Expenses, Bureau of Animal Industry

(Based on Estimated Available, 1950)

TABLE A

(Amounts Shown Include Estimated Pay Adjustment Supplementals)

Present Structure		Proposed Structure									
Appropriation Items or Financial Projects	Total Amount	Appropriation: Item	Financial Project								
		Animal Disease Control and Eradication	Eradicating tubercu- lois in livestock (including poultry)	Eradicating Bang's disease in cattle	Eradicating scabies	Eradicating cattle ticks	Control of hog cholera and related swine diseases	Determining the exist- ence of diseases in the field	Import-export inspection and quarantine	Supervision over interstate movement of livestock	Control of Manufac- ture, importation and ship- ment of viruses, serume, toxins, etc.
ERADICATING TUBERCULOSIS AND BANG'S DISEASE .....	\$6,316,700:	\$6,316,700:									
Eradicating tuberculosis in livestock (including poultry) .....	1,851,440:		\$1,851,440:								
Eradicating Bang's disease in cattle ....	4,465,260:			\$4,465,260:							
INSPECTION AND QUARANTINE .....	\$1,235,800:	1,235,800:									
Import-export inspection and quarantine .	308,858:								\$308,858:		
Supervision over interstate movement of livestock .....	430,769:									\$430,769:	
Determining the existence of diseases in the field .....	24,261:							\$24,261:			
Eradicating scabies .....	117,881:				\$117,881:						
Eradicating cattle ticks .....	317,888:					\$317,888:					
Control of hog cholera and related swine diseases .....	36,143:						\$36,143:				
VIRUS SERUM TOXIN ACT .....	\$401,300:	401,300:									
Control of manufacture, importation and shipment of viruses, eerums, toxins, etc. ....	401,300:										\$401,300
Total .....	7,953,800:	7,953,800:	1,851,440:	4,465,260:	117,881:	317,888:	36,143:	24,261:	308,858:	430,769:	401,300





(c) Eradicating Tuberculosis and Bang's Disease

The 1951 Budget estimates propose the transfer in the estimates of this item to the subappropriation "Animal Disease Control and Eradication". Therefore, the work formerly reported under the heading "Eradicating Tuberculosis and Bang's Disease" is now included under (d) Animal Disease Control and Eradication.

CHANGE IN LANGUAGE

The estimates propose deletion of language for this item as follows:

[Eradicating tuberculosis and Bang's disease: For the control and eradication of the diseases of tuberculosis and paratuberculosis of animals, avian tuberculosis, and Bang's disease of cattle, \$6,229,000: Provided, That no part of the money hereby appropriated shall be used in compensating owners of cattle except in cooperation with and supplementary to payments to be made by State, Territory, county, or municipality where condemnation of cattle shall take place, nor shall any payment be made hereunder as compensation for or on account of any such animal if at the time of inspection or test, or at the time of condemnation thereof, it shall belong to or be upon the premises of any person, firm, or corporation to which it has been sold, shipped, or delivered for the purpose of being slaughtered: Provided further, That out of the money hereby appropriated no payment as compensation for any cattle condemned for slaughter shall exceed one-third of the difference between the appraised value of such cattle and the value of the salvage thereof; that no payment hereunder shall exceed the amount paid or to be paid by the State, Territory, county, and municipality where the animal shall be condemned; and that in no case shall any payment hereunder be more than \$25 for any grade animal or more than \$50 for any purebred animal.]

This change in language provides for deletion of the subappropriation "Eradicating tuberculosis and Bang's disease" in accordance with the proposed consolidation of this item with "Inspection and quarantine" and "Virus Serum Toxin Act" under a new item "Animal disease control and eradication."

(over)

(d) Animal Disease Control and Eradication

Activities transferred in 1951 Estimates from "Salaries and expenses, Agricultural Research Administration":

Eradicating tuberculosis and Bang's disease .....	+\$6,316,700
Inspection and quarantine .....	+1,235,800
Virus Serum Toxin Act .....	+401,300
Base for 1951 .....	7,953,800
Budget Estimate, 1951 .....	8,104,000
Increase .....	<u>+150,200</u>

SUMMARY OF INCREASES AND DECREASES, 1951

To strengthen inspection services at seaports to guard against introduction of foot-and-mouth disease into the United States	+61,400
To purchase necessary land and to construct buildings for inspection of import livestock at four Canadian border ports	+40,000
To more effectively enforce the 28-hour law regarding livestock shipments .....	+20,380
To provide for the inspection of pullorum antigen .....	+10,310
To place on a full-year basis in 1951, pay adjustments under Public Law 429, which were in effect for only a part of the fiscal year 1950 .....	+28,110
Decrease due to the discontinuance of the international quarantine station on Swan Island in accordance with the provisions of Public Law 166, 81st Congress, approved July 13, 1949 .....	-10,000

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950 (estimated)	Increase or decrease		1951 (estimated)
			P.L. 429 : adjustment:	Other	
1. Eradicating tuberculosis in livestock (including poultry) ....	\$1,939,783	\$1,851,440	+\$7,860	- -	\$1,859,300
2. Eradicating Bang's disease in cattle ...	4,209,693	4,465,260	+10,440	- -	4,475,700
3. Eradicating scabies .....	108,589	117,881	+647	- -	118,528
4. Eradicating cattle ticks	324,924	317,888	+1,547	- -	319,435
5. Control of hog cholera and related swine diseases:	99,700	36,143	+230	- -	36,373

(Continued on next page)



Project	1949	1950 (estimated)	Increase or decrease		1951 (estimated)
			P.L. 429 adjustment	Other	
6. Determining the existence of diseases in the field	15,016	24,261	+57	- -	24,318
7. Import-export inspection and quarantine ..	324,650	308,858	+1,790	+91,400(1)	402,048
8. Supervision over inter-state movement of livestock	439,028	430,769	+2,149	+20,380(2)	453,298
9. Control of manufacture, importation and shipment of viruses, serums, toxins, etc. ....	369,191	401,300	+3,390	+10,310(3)	415,000
Total pay adjustment costs, Public Law 429:	- -	[116,800]	[+28,110]	[+2,090]	[147,000]
Unobligated balance .....	132,105	- -	- -	- -	- -
Total available .....	7,962,679	7,953,800	+28,110(4)	+122,090	8,104,000
Transferred to "Salaries and Expenses, Office of Information, Department of Agriculture"	+321	- -			
Transfer in 1950: estimates from "Printing and binding, Department of Agriculture"	-12,000	- -			
Anticipated pay adjustment supplemental	- -	-116,800			
Total appropriation or estimate .....	7,951,000	7,837,000			

INCREASES OR DECREASES

The increase of \$150,200 in this item for 1951 is composed of the following:

(1) A net increase of \$91,400 under the project "Import-export inspection and quarantine," composed of:

(a) Increase of \$61,400 for strengthening supervision over disposal of ships' garbage containing prohibited meats and over import animal products, hay and other materials, to prevent introduction into this country of foot-and-mouth disease and other animal plagues.

Need for Increase: Danger of spread of foot-and-mouth disease from Europe has increased in the past year because of spread of a virulent form of the disease over most of continental Europe. In addition, foot-and-mouth disease continues to exist in almost all countries of Asia, Africa, and South America, as well as in Mexico. Airborne and seaborne commerce with European countries is very extensive and enters the United States through many ports. Supervision of such commerce is inadequate at many points and at some ports is non-existent except for such assistance as other cooperating government agencies are able to give. Additional funds for inspection service are urgently needed since present funds will not permit the assignment of additional personnel to this work.

The proper disposal of garbage derived in part from prohibited fresh chilled or frozen meats on board vessels as ships' stores is especially important. At least two past outbreaks of foot-and-mouth disease in this country have been attributed to scraps of meat of foreign origin coming ashore in ships' garbage. It is also necessary to supervise closely the importation and subsequent handling of import animal products, such as hides, skins, pancreatic glands for production of insulin, other glands for pharmaceutical purposes, etc., which are permitted entry subject to restrictions to prevent the introduction of communicable animal diseases of foreign origin, and also the destruction of hay and straw packing materials, which might harbor the virus.

In the fiscal year 1949 more than 3,600 ships, arriving at ocean ports in this country, were found to have prohibited meats aboard as sea stores. This is indicative of the problem with respect to disposal of prohibited garbage. There has been a great increase in the amount of prohibited meats seized in passenger baggage, both on planes and on ocean vessels. Thousands of small parcels of such meats have been seized.

During the last fiscal year, 70,880,102 hides and skins were imported, upon compliance with special requirements, from countries where foot-and-mouth disease exists, of which 1,702,889 were permitted entry subject to further restrictions. Animal casings imported total 12,603,537 pounds of certified casings and 1,381,343 pounds of casings released after disinfection. Animal byproducts were transported to and handled at about 200 destination establishments. In addition, supervision was exercised over many other products permitted entry subject to restrictions. All railroad cars, trucks, and premises involved in the transportation and handling of restricted products were disinfected.



The scope of the work at the Port of New York is indicative of the problems at other ports. The Port of New York has a frontage of more than 650 miles on navigable waterways, of which 411 are in New York and 240 in New Jersey. There are 1900 piers or bulkhead wharves and landings where ships in foreign commerce may dock and inspection service is necessary. During the fiscal year 1949 over 41,000,000 foreign hides were entered at this port as well as approximately 60,000 tons of wool and 28,000 tons of other animal byproducts. It has 21 establishments approved for the receipt and handling of restricted products.

Plan of Work: Additional full-time inspectors would be assigned at 8 ports, and part-time assignments would be given to inspectors at smaller ports. *Seattle, San Fran, Fla (2), N.Y. (2), Boston, Los Angeles*

Inspectors board ships upon arrival in ports, determine whether any fresh or frozen meats are contained in the ships' stores as well as the country of origin, and whether any live ruminants or swine are being carried as sea stores from countries where foot-and-mouth disease or rinderpest exists. In the latter case, such animals are condemned and slaughtered immediately under supervision. Inspectors witness the destruction of the offal and hides and oversee the cleaning and disinfection of all premises and equipment used in connection with such animals. Written notices are presented to the ships' officers forbidding the throwing overboard or the landing, except in sealed containers for proper disposal ashore, usually by incineration, of garbage containing meat originating in any country where foot-and-mouth disease or rinderpest exists. Hides, skins, hair, wool, bone meal, hoof meal, tankage, and other inedible parts or products of ruminants and swine, as well as fertilizers and hay and straw for feeding and packing purposes, are inspected and invoices or other certificates of foreign inspection examined. Items condemned or refused entry are destroyed or removed from the country under supervision.

Through cooperation of the Bureau of Customs certain products are held for release by Bureau inspectors. When inspection of the product and examination of accompanying documents show the products originated in areas free from disease, they are released without further restriction; otherwise, they may be held in quarantine for a specified period or be allowed to proceed in sealed cars or ship compartments to establishments approved for the receipt and handling of restricted import products. The compartments, cars, or trucks are disinfected after each such use. Restricted products are stored separately at approved establishments and either the products or the effluents of the processing plants are disinfected to prevent the escape of any infection with which they may be contaminated.

(b) Increase of \$40,000 for acquisition of land and construction of 4 buildings required for inspection of livestock at Canadian border ports.

Need for Increase: Adequate inspection facilities for imported livestock are urgently needed at a number of designated ports of entry along the Canadian border in order to provide for rapid and humane handling of livestock under sanitary conditions. From 1938 through 1941 importations



from Canada averaged 250,000 animals a year. Since most shipments were by rail, inspection facilities were provided by the railroads. Truck shipments were not extensive. During the war Canada prohibited the exportation of livestock except for dairy or breeding purposes. Since the lifting of the embargo on exports by Canada in August 1948, increasing numbers of importations have been by truck and the need for facilities for inspections is more apparent. Protests have been made to Bureau inspectors because of lack of adequate inspection facilities for several years, but criticism has increased since the lifting of the Canadian embargo and the increase in imports. Importations from Canada in the fiscal year 1949 were 621,702 animals as compared with 129,867 in 1948. Buildings are needed to provide adequate restraint facilities, proper lighting and protective covering for inspections, many of which must be made in inclement or severe weather. Inspection facilities are needed at most ports but particularly at the following:

Thousand Islands Bridge, New York	North Troy, Vermont
Rooseveltown, New York	Richford, Vermont
Chateaugay, New York	Houlton, Maine
Rouses Point, New York	Calais, Maine

Four ports listed have no inspection facilities and at the others only dilapidated open pens are available which cannot be properly disinfected.

Plan of Work and Financial Requirements: Buildings would be constructed at Thousand Islands Bridge, Rooseveltown, Chateaugay, and Rouses Point, New York in the fiscal year 1951 and at the other ports in the fiscal year 1952. Necessary land would be acquired for sites, the average cost of which is estimated at \$800 each. One-story buildings of cinder block or frame would be constructed. They would be equipped with ramps for unloading and reloading, holding pens, chutes for inspections, scales pit, running water, and heating facilities.

(c) Decrease of \$10,000 due to discontinuance of international quarantine station on Swan Island.

The Third Deficiency Appropriation Act, 1946, appropriated \$85,000 for the establishment of an international quarantine station on Swan Island for use in the importation of livestock into the United States, and Central and South American countries. Of this amount \$10,000 was to be a recurring item for operating expenses. Public Law 166, approved July 13, 1949, repealed the legislation authorizing the establishment and maintenance of the station because its use was considered a danger to the livestock industry of this country. The station is being discontinued in the fiscal year 1950.

Pending an appraisal of the facilities, the Civil Aeronautics Administration has agreed to assume custodianship in return for temporary use of them. If funds are available for transfer of the facilities at their appraised value, it is anticipated the Civil Aeronautics Administration will take possession.

(2) Increase of \$20,380 for more effective enforcement of the 28-hour law regarding livestock shipments in interstate commerce.

Need for increase: The purpose of the 28-hour law is to provide humane handling of livestock in transit through proper feeding, watering and resting. Its enforcement also has had a material effect on the reduction of shipping losses.

There is reason to believe there is widespread noncompliance with the law at the present time. More uniform coverage of the movement of livestock by the examination of records and the inspection of stockpen facilities is needed to insure compliance.

The law provides that livestock shall be unloaded at stated intervals into properly equipped pens for rest and that they shall be properly fed and watered. Movements subject to the law are usually made by railroad. Very few shipments move by water. Long-haul rail shipments -- which are those subject to the law -- have remained fairly constant, the increase in the use of motor trucks in the movement of livestock being confined almost entirely to relatively short hauls.

Enforcement is accomplished through the examination of the records of carriers, stock yards, and livestock receivers by Bureau inspectors. Periodic inspection of the facilities at intermediate feeding stations also is necessary.

In the past most livestock has been consigned to or passed through public markets where Bureau inspectors are stationed. The volume of this movement has not diminished, but many shipments are now going to points or over routes not under Bureau supervision.

Losses in livestock shipments continue to be heavy, the railroads in 1947 having paid in claims a total of \$4,687,275. Further losses are sustained by packers from bruised animals, but figures on these losses are not available.

There have been numerous complaints from livestock producers and meat packers that their animals are not properly fed and watered at many stations. Recent spot checks show that railroad facilities for feeding, watering, and resting livestock in transit are in unsatisfactory condition. Maintenance during the war was at a minimum and proper repairs have not been made since. Broken unloading ramps, fencing, etc., often result in injuries to livestock. Feed racks with missing parts result in wastage and in inadequate feeding. Animals often cannot obtain sufficient water because of broken or leaky troughs. Muddy or rough-surfaced floors do not permit animals, especially those in weakened condition, to obtain rest needed to continue their journey safely. There are about 1,000 feeding stations throughout the country.

Plan of Work: In order to provide for minimum and most pressing needs, additional inspectors would be employed to visit feeding stations not now under inspection or inadequately covered in order to observe the



manner of feeding and watering livestock and to inspect stock pen facilities and feed and water supply. They would also examine feeding station and carrier records, investigate complaints, and develop evidence when violations are apparent.

(3) Increase of \$10,310 to provide for more adequate inspection of commercially produced pullorum antigen used to diagnose pullorum disease in chickens.

Need for Increase: Pullorum disease is the most widespread disease of chickens and unless controlled would render the hatchery industry practically inoperable. The disease is controlled through the use of a diagnostic agent known as antigen. Infected birds are located through the use of antigen and are removed from flocks. Pullorum disease control depends on the accuracy, uniformity and dependability of the antigen to detect the disease. Pullorum antigen is used generally by poultrymen. Its use by cooperators is an important phase of the National Poultry Improvement Plan.

Pullorum antigen was produced for some time on an experimental basis but the Bureau's patent has now expired. It is now being produced commercially in large amounts in establishments licensed under the Virus Serum Toxin Act. Increased production of pullorum antigen and anticipated additional production will require increased funds for testing of pullorum antigen in order to protect the poultry industry. Individual lots which fail to meet acceptable standards must be rejected. If the product is not standardized, birds infected with pullorum disease may be missed when tested or false reactions may occur in normal birds.

In order to assure that the antigen meets acceptable standards, it is necessary to test each lot because it is derived from living organisms. Individual lots of antigen are subjected to chemical, bacteriological and biological tests. They are examined for sensitivity, bacterial density, formaldehyde and dye content, bacterial contamination where necessary, etc. Since it is impossible to control all conditions of growth of the organism, different lots of antigen vary in their qualities. During the fiscal year 1949, 252 lots of commercial antigen were tested, 37 of which were rejected. The amount passed represented 3,414,660 cc of antigen, or enough to test 68 million birds.

(4) Increase of \$26,600 to place on a full year basis in 1951 pay adjustments under P. L. 429 which were in effect for only a part of the fiscal year 1950.



LANGUAGE

The estimates include new language as follows:

Animal disease control and eradication: For the control and eradication, including inspections and quarantines, of tuberculosis and paratuberculosis of animals, avian tuberculosis, Bang's disease of cattle, scabies in sheep and cattle, southern cattle ticks, hog cholera and related swine diseases, and dourine in horses, and inspection and quarantine work; for supervision of the transportation of livestock, including administration of the twenty-eight hour law; for inspection of vessels; and for carrying out the provisions of the Act of March 4, 1913 (21 U.S.C. 151-158), relating to veterinary biological products, \$8,104,000, including not to exceed \$40,000 for the acquisition of land and construction of four buildings for inspection of livestock at Canadian border ports of entry: Provided, That no payment hereunder as compensation for any cattle condemned for slaughter for tuberculosis, paratuberculosis, or Bang's disease shall exceed (1) \$25 for any grade animal or \$50 for any purebred animal, (2) one-third of the difference between the appraised value and the value of salvage thereof, or (3) the amount paid or to be paid by the State or other cooperating agency, and no payment hereunder shall be made for any animal if at the time of test or condemnation it shall belong to or be upon the premises of any person, firm, or corporation to which it has been sold, shipped, or delivered for slaughter: Provided further, That inspection service shall be maintained at all stockyards having such service during the current fiscal year.

The proposed new language combines the present subappropriation items "Eradicating tuberculosis and Bang's disease", "Inspection and quarantine", and "Virus Serum Toxin Act" into a single subappropriation item for the purpose of simplifying the appropriation structure and the administration of the Bureau. The new language will in no way affect the nature or scope of the work being conducted.



## STATUS OF PROGRAM

Current Activities: An extensive field program is conducted for the protection of the livestock and poultry industries through measures for the prevention, control and eradication of diseases affecting them and for humane handling of livestock in interstate and foreign commerce.

It includes:

1. Field activities for control and eradication of major animal diseases in cooperation with State agencies through testing for tuberculosis and brucellosis; inspection and dipping for cattle and sheep scabies and fever ticks; farm inspections and consultations for hog cholera and related swine diseases; and inspection and testing to determine the existence of diseases such as dourine, anthrax, etc.
2. Inspections of imported animals and supervision of certain imported products and materials to prevent the introduction of communicable diseases of foreign origin, such as foot-and-mouth disease, and identification of imported purebred livestock for certification to collectors of customs for free entry under the Tariff Act of 1930. This work is conducted principally at ports of entry.
3. Inspections at public stockyards to detect communicable diseases and prevent their spread through interstate shipments.
4. Supervision and inspection of the preparation of veterinary biologics at licensed establishments to insure purity and potency.
5. Enforcement of the 28-hour law to prevent livestock losses through humane handling in interstate shipment.
6. Inspection of animals for export in order to meet requirements of country of destination and inspection of facilities on transporting vessels to assure humane handling and safe transport.

## Examples of Recent Progress:

1. The low incidence of tuberculosis in cattle was maintained at 0.19 percent during the past fiscal year. Cattle tested numbered 8,737,501 as compared with 8,294,423 for the previous year; 17,007 reactors were removed from the 536,162 herds tested.
2. Improved practices to facilitate tracing to their origin cases of tuberculous cattle revealed at packing plants are resulting in earlier retesting of herds involved, and removal of animals which would otherwise remain sources of exposure.
3. Adoption of a graduated heavier dose of tuberculin for retesting



in known infected herds has led to discovery of tuberculous animals that had apparently remained undetected under regular testing procedures.

4. The uniform program for nationwide brucellosis eradication has been adopted by 41 States where existing laws and conditions would permit early use of recommended practices. A permanent national brucellosis committee representing all interested groups has been organized. Cooperative conferences were held in the Northeast and Southern regional areas by the Extension Service and the Bureau, and were attended by livestock producers, livestock sanitary officials, practicing veterinarians, public health officials, representatives of livestock and farm organizations, members of the farm press, and others. Meetings have stimulated demand for eradication measures.
5. The incidence of brucellosis of cattle was further reduced from 4.3 to 4.0 percent during the past fiscal year. Testing was conducted in 563,501 herds containing 5,671,347 cattle with 226,691 reactors being disclosed. Over 66,000 reactors were held in calf vaccination herds for gradual disposal through slaughter without payment of indemnity.
6. 469 counties located in 21 States and the District of Columbia were listed as modified accredited areas (i.e., brucellosis-free under standards applied). All counties in North Carolina and New Hampshire have qualified for that status, and some others are approaching it.
7. Calf vaccination with Strain 19 vaccine increased 35.7 percent over the previous year. 1,575,128 calves between 4 and 8 months of age were officially vaccinated, bringing the total vaccinations since the inauguration of this practice in 1941 to 5,590,294.
8. Shortage of veterinarians continues to be a limiting factor to more rapid advancement of brucellosis eradication as well as other Bureau programs. Use of lay technicians for certain work in the brucellosis program has been accepted in certain States. A program for employment of sophomore and junior veterinary students as veterinary trainees during the summer has been inaugurated.
9. Funds provided by cooperating State and counties in the eradication of tuberculosis and brucellosis for the fiscal years 1949 and 1950 are approximately, as follows:

Tuberculosis

Brucellosis

	1949	1950	1949	1950
Operating Funds....	\$3,950,000	\$4,101,889	\$4,010,000	\$5,243,824
Indemnity Payments:	1,170,000	1,212,492	2,800,000	2,490,289
Total .....	\$5,120,000	\$5,314,381	\$6,810,000	\$7,734,113

10. The following tables show the average State and Federal indemnity payments and other data pertaining to the programs for control and eradication of tuberculosis and brucellosis:

RECORD OF TESTING FOR  
TUBERCULOSIS AND BRUCELLOSIS  
FISCAL YEAR 1949

State	Tuberculosis		Brucellosis			
	Cattle	Percent	Cattle	Percent	Reactors	Calves
	Tested	Reactors	Tested	Reactors	Held	Vaccinated
Alabama .....	34,128	0.07	97,270	3.9	582	76,710
Arizona .....	18,144	0.11	33,303	4.5	722	7,872
Arkansas .....	23,424	0.04	42,071	6.4	0	10,483
California .....	702,718	0.57	0	0.0	0	200,596
Colorado .....	16,200	0.16	45,457	3.8	1,719	35,341
Connecticut .....	166,310	0.16	19,592	0.9	0	17,432
Delaware .....	44,631	0.17	16,198	1.1	53	6,081
Dist. of Col. ....	330	0.00	330	0.0	0	0
Florida .....	72,011	0.13	83,969	9.1	93	11,190
Georgia .....	19,415	0.01	114,829	4.6	0	1,430
Idaho .....	48,792	0.09	31,797	3.7	202	39,104
Illinois .....	565,786	0.22	285,097	4.7	7,389	142,784
Indiana .....	140,556	0.26	191,669	6.5	0	19,379
Iowa .....	501,590	0.32	75,692	7.2	14	28,102
Kansas .....	319,172	0.13	71,033	7.7	0	1,233
Kentucky .....	32,544	0.17	34,881	4.4	676	5,885
Louisiana .....	20,330	0.07	37,150	11.1	313	26,549
Maine .....	89,733	0.03	120,763	1.8	1,205	5,022
Maryland .....	208,851	0.19	78,883	1.5	326	25,059
Massachusetts .....	202,850	0.20	299	0.0	0	5,929
Michigan .....	275,015	0.26	243,404	2.6	5,233	21,636
Minnesota .....	589,095	0.05	460,639	4.5	3,157	44,750
Mississippi .....	33,846	0.06	51,870	3.6	0	20,282
Missouri .....	131,018	0.08	112,944	7.3	0	10,364
Montana .....	15,776	0.06	29,907	3.6	5	29,838
Nebraska .....	85,669	0.31	32,575	9.4	0	5,581
Nevada .....	5,094	0.02	10,284	3.3	4	5,735
New Hampshire .....	100,109	0.05	159,804	1.4	50	9,325

	Tuberculosis		Brucellosis			
	Cattle Tested	Percent Reactors	Cattle Tested	Percent Reactors	Reactors Held	Calves Vaccinated
New Jersey .....	241,682	0.16	85,693	1.0	389	16,404
New Mexico .....	12,068	0.07	38,293	1.3	143	5,757
New York .....	1,115,578	0.14	314,027	6.9	21,618	175,639
North Carolina .....	60,559	0.01	174,465	0.8	79	1,093
North Dakota .....	26,171	0.15	233,474	4.3	992	19,438
Ohio .....	334,622	0.17	304,254	3.8	0	58,713
Oklahoma .....	92,779	0.14	73,012	6.3	298	11,763
Oregon .....	180,128	0.08	264,833	1.6	0	21,492
Pennsylvania .....	604,508	0.21	492,720	1.8	0	50,324
Rhode Island .....	24,924	0.79	3,711	0.4	5	628
South Carolina .....	33,824	0.16	59,890	1.5	99	838
South Dakota .....	51,751	0.11	12,113	7.6	337	6,665
Tennessee .....	42,081	0.50	85,435	4.5	1,549	33,365
Texas .....	159,820	0.04	92,809	6.4	4	5,102
Utah .....	29,609	0.11	30,594	4.3	1,292	12,130
Vermont .....	199,499	0.13	73,124	4.8	3,482	34,053
Virginia .....	128,810	0.10	114,803	2.5	994	20,958
Washington .....	77,080	0.20	186,353	3.7	2,339	47,698
West Virginia .....	35,491	0.04	80,522	1.1	0	3,743
Wisconsin .....	675,108	0.15	405,056	4.8	8,509	214,659
Wyoming .....	2,678	0.07	18,515	2.7	276	9,880
Hawaii .....	17,644	0.22	0	0	0	0
Puerto Rico .....	127,390	0.09	45,941	5.7	2,203	9,094
Virgin Islands .....	560	0.00	0	0	0	0
Totals .....	8,737,501	0.19	5,671,347	4.0	66,351	1,573,128



11. Sheep scabies was found in 13 States as against 17 in the previous fiscal year and cattle scabies in 8 States as against 12 previously. Because of reduced personnel, particularly veterinarians, it has not been possible to pursue this work at desirable levels in the past few years. However, renewed cooperative activities are under way in Illinois, Louisiana, Mississippi, Missouri, New York, Virginia, and West Virginia. Sheep scabies apparently is being spread through the medium of auction markets and is giving great concern. The Bureau has no control over the many intrastate movements through these markets. The volume and extent of scabies eradication is indicated in the following table:

	<u>Sheep</u>	<u>Cattle</u>
	<u>1949</u>	<u>1949</u>
Field Inspections .....	5,813,900	958,998
Dippings .....	373,993	4,815
Infected Animals .....	19,955	1,454
Exposed Animals .....	25,870	415

12. Bureau and cooperative employees supervised 8,625,513 inspections or dippings of cattle for fever ticks and 1,006,085 inspections or dippings of horses and mules. In Puerto Rico, it was also necessary to treat 942,385 sheep and goats on infested premises.
13. A cooperative campaign is under way to eradicate fever ticks in Florida and Georgia. The infestation discovered in Volusia County, Florida, late in 1948 presently involves 10 counties in Florida and 1 in Georgia. Heavy movement of cattle from this county in the months previous to discovery of the outbreak resulted in widespread infestation. Continued inspection of premises to which shipments have been made are under way. All cattle and horse stock in the quarantined area are under a systematic dipping and inspection program.
14. Continued maintenance of a buffer quarantine area in Texas for about 500 miles along the Mexican border from Del Rio to the Gulf of Mexico is necessary to protect the United States from introduction of fever ticks from Mexico. Ticks on stray or smuggled animals from the adjacent Mexican territory which is infested are a continuing source of danger.
15. 47,707 farm inspections and consultations for hog cholera and related swine diseases were made by Bureau veterinarians. In addition, the serum-culture method of vaccination for swine-erysipelas was applied to 42,074 herds containing 2,818,361 hogs.

16. Continued vigilance is necessary in testing horses for dourine along the Mexican border for early detection to prevent dissemination of the disease in the United States. Laboratory tests were made of 1,223 blood samples, 4 of which were positive.
17. More than 628,000 animals were inspected for disease at ports of entry during the fiscal year 1949, 93 of which were detained for further observation and testing. Of the animals inspected 2,215 were refused entry on account of disease. The number of animals imported from Canada rose from 129,867 in the fiscal year 1948 to 621,702 in the fiscal year 1949 due mainly to the fact that the Canadian Government, on August 16, 1948, lifted its embargo which had prevented the exportation of cattle other than those for dairy or breeding purposes. Importations were as follows:

<u>Ports of entry</u>	<u>Cattle</u>	<u>Swine</u>	<u>Sheep</u>	<u>Goats</u>	<u>Horse Stock</u>	<u>Other</u>
Ocean ports .....	612	363	185	1,083	433	36
Canadian border ports	525,529	1,579	80,403	35	14,156	--
Mexican border ports.	--	--	--	--	3,940	--
Total .....	526,141	1,942	80,588	1,118	18,529	36

The problems involved in preventing the introduction of communicable, contagious, or infectious diseases of animals were markedly increased by the continued existence of foot-and-mouth disease in Mexico, and because of the fact that during the past year Europe and sections of Africa have undergone an epizootic form of foot-and-mouth disease.

The identification and certification of purebred animals for entry, by species, was as follows: 251 horses; 38,190 cattle; 3,556 sheep; 1,850 swine; 9 goats; 734 dogs; and 1 cat; a total of 44,591 for the fiscal year 1949. This represented an increase of 4.8 percent over the previous fiscal year.

18. There is urgent need for increased sanitary control of imported animal by-products, forage, etc., to prevent the introduction and dissemination of dangerous communicable diseases of animals, such as foot-and-mouth disease, through infected or contaminated animal by-products, hay and straw because of the continued existence of foot-and-mouth disease in various parts of the world.
19. During the past fiscal year, 70,880,102 hides and skins were imported. Of this total, 1,702,889 hides and skins were permitted entry subject to further restrictions. Sanitary control was exercised over 13,984,880 pounds of animal casings admitted to the United States, consisting of 12,603,537 pounds of

certified casings and 1,381,343 pounds of casings released after disinfection, 692 pounds of animal casings offered for entry into the United States were rejected. Animal by-products were transported to and handled at approximately 200 destination establishments. All railroad cars, trucks, and premises involved in the transportation and handling of products permitted entry subject to further restrictions were cleaned and disinfected.

20. Animals inspected for export during the past year are shown by species and country of destination in the following table:

<u>Kind of Animal</u>	<u>Canada</u>	<u>Mexico</u>	<u>Other Countries</u>	<u>Total</u>
Cattle .....	918	2,414	4,401	7,733
Swine .....	29	247	428	704
Sheep .....	70	425	136	631
Goats .....	2	40	3,138	3,180
Horses .....	210	473	1,741	2,424
Mules .....	- -	24	188	212
Others .....	347	1	6	354
Total .....	1,576	3,624	10,038	15,238

21. In view of the continued existence of foot-and-mouth disease in Mexico, efficient stockyards inspection work is extremely important and essential. In order to maintain an efficient inspection and in view of the provision in the 1950 Agricultural Appropriation Act requiring continuation of inspection at all stockyards having service in the previous fiscal year, funds have been made available from the item "Eradication of foot-and-mouth and other contagious diseases of animals and poultry" for inspection purposes. Past experience has proved that key locations for inspection to prevent dissemination of the disease are at ports of entry and public stockyards.

During the fiscal year 1949 inspection was inaugurated at Phoenix, Arizona, and Tulsa, Oklahoma, and additional yards were brought under inspection at Clovis, New Mexico and Memphis, Tennessee.

Volume of work is reflected in the following tables:

Inspection at public stockyards

	<u>Fiscal Year</u> <u>1948</u>	<u>Fiscal Year</u> <u>1949</u>
Number of stockyards operating .....	45	48
Number of cities in which located ...	41	43



	Fiscal Year 1948	Fiscal Year 1949
Animals inspected:		
Cattle .....	23,866,182	22,409,726
Sheep .....	18,132,436	16,230,899
Swine .....	26,932,970	26,499,422
Total animals inspected .....	68,931,588	65,140,047

Animals dipped and immunized:		
Cattle dipped .....	4,502	4,120
Sheep dipped .....	197,469	134,438
Swine immunized .....	284,881	238,436
Total animals dipped and immunized	486,852	376,994

Health certificates issued for shipments .....	169,358	164,085
Infectious cars received .....	257	155
Cars cleaned and disinfected .....	1,910	1,647
Trucks cleaned and disinfected ...	682	1,356
Diseased animals detected (excludes those reacting to tests for tuberculosis and brucellosis).....	5,348	3,906

Enforcement of animal quarantine acts

Violations investigated by Bureau	22	24
Violations referred to the Solicitor of the Department .....	3	9

The difference between the number of violations reported to the Bureau and those referred to the Solicitor is due to the fact that in some cases investigations of alleged violations have not been completed, and in others the evidence has been found to be insufficient to warrant further action.

22. Reports of violations of the 28-hour law during the past fiscal year numbered 514. At the beginning of the year 36 reported violations were under investigation. Recommendations were made to the Solicitor of the Department for prosecution of 157. 132 were filed without action on information accompanying the report, 185 were placed in abeyance after investigation and 76 were under investigation at the end of the year. Penalties aggregating \$29,800 were imposed by the courts covering 285 violations.

23. Outstanding licenses under the Virus Serum Toxin Act permitted production of 111 different biological products as of July 1, 1949. Several products are manufactured in more than one form so that the total number of different products produced was 197. The progress and anticipated extent of work under the project is reflected in the following table:

	: Actual	: Estimated	: Estimated
	: F.Y. 1949	: F.Y. 1950	: F. Y. 1951
(a) Establishments producing anti-	:	:	:
hog-cholera serum and hog-	:	:	:
cholera virus .....	37:	37:	37
Production (cc):	:	:	:
Serum (preserved product):	1,232,395,000:	1,396,780,000:	1,410,747,000
Virus:	:	:	:
Simultaneous .....	91,095,000:	99,545,000:	100,540,000
Hyperimmunizing .....	254,405,000:	277,259,000:	280,031,000
Inoculating .....	1,138,000:	1,239,000:	1,251,000
Animal inspections .....	3,518,000:	3,843,000:	3,881,000
Tests supervised .....	14,600:	18,600:	18,600
(b) Establishments producing other:	:	:	:
biologics .....	40:	40:	40
Production:	:	:	:
Cc .....	444,155,000:	517,729,000:	520,906,000
Milligrams .....	53,866,029:	63,299,000:	63,731,000
Disks .....	612,300:	410,000:	451,000
Units .....	630,563,000:	650,500,000:	661,550,000
(c) Products destroyed (all	:	:	:
kinds):	:	:	:
Cc .....	27,916,000:	53,262,000:	54,716,000
Milligrams .....	5,116,000:	2,387,000:	2,401,000
Disks .....	3,400:	30,000:	30,000
Units .....	15,049,000:	15,550,000:	16,581,000
(d) Export certificates issued ...:	856:	1,100:	1,100

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that proper record-keeping is essential for the transparency and accountability of the organization. This section also outlines the various methods used to collect and analyze data, ensuring that the information is reliable and up-to-date.

2. The second part of the document focuses on the implementation of these practices. It details the steps involved in setting up a robust system for data collection and analysis. This includes identifying the key areas of focus, selecting appropriate tools and technologies, and training staff to ensure they are equipped to handle the data effectively. The goal is to create a seamless process that allows for the efficient management of information.

3. The third part of the document addresses the challenges that may arise during the implementation process. It acknowledges that there can be resistance to change and that some staff may find it difficult to adapt to new procedures. To overcome these challenges, the document suggests several strategies, such as providing ongoing support and training, and fostering a culture of collaboration and communication. It also highlights the importance of regular monitoring and evaluation to ensure that the system is working as intended and to make any necessary adjustments.

4. The final part of the document provides a summary of the key findings and conclusions. It reiterates the importance of maintaining accurate records and the need for a systematic approach to data collection and analysis. The document also offers some recommendations for future work, suggesting that the organization should continue to refine its processes and explore new technologies to further improve its data management capabilities. Overall, the document serves as a comprehensive guide for anyone looking to enhance their record-keeping and data management practices.



(e) Inspection and Quarantine

The 1951 Budget estimates propose the transfer in the estimates of this item to the subappropriation "Animal Disease Control and Eradication." Therefore, the work formerly reported under the heading "Inspection and Quarantine" is now included under (d) Animal Disease Control and Eradication.

CHANGES IN LANGUAGE

The estimates propose deletion of language for this item as follows:

Inspection and quarantine: For inspection and quarantine work including the control and eradication of hog cholera and related swine diseases, southern cattle ticks, scabies in sheep and cattle, and dourine in horses, the supervision of the transportation of livestock, the inspection of vessels, the execution of the twenty-eight hour law, the inspection and quarantine of imported animals in accordance with the Act of August 30, 1890 (21 U. S. C. 102), and the Act of July 24, 1946 (21 U. S. C. 133), and the inspection work relative to the existence of contagious diseases, \$1,154,000: Provided, That service shall be maintained at all stockyards having such service during the current fiscal year.

This change in language provides for the deletion of the subappropriation "Inspection and quarantine" in accordance with the proposed consolidation of this item with "Eradicating tuberculosis and Bang's disease" and "Virus Serum Toxin Act" under a new item "Animal disease control and eradication."

(over)

(f) Meat Inspection

Appropriation Act, 1950 .....	\$12,577,000
Anticipated pay adjustment supplemental, 1950 .....	266,000
Base for 1951 .....	12,843,000
Budget Estimate, 1951 .....	12,959,000
Increase, (To place on a full-year basis in 1951, pay adjustments under P. L. 429 which were in effect for only a part of the fiscal year 1950) .....	<u>+116,000</u>

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950 (estimated)	Increase : P. L. 429: adjustment	1951 (estimated)
1. Meat inspection operations at packing plants under the Federal meat inspection service .....	\$12,040,936	\$12,618,100	+\$113,900	\$12,732,000
2. Determination of adulterations and other objectionable conditions in meat and meat food products by laboratory analysis .....	155,222	139,800	+1,200	141,000
3. Inspection of imported meats and meat food products .....	40,144	45,200	+500	45,700
4. Chemical, pathological, and zoological investigations relating to meat inspection .....	50,154	39,900	+400	40,300
Total pay adjustment costs, Public Law 429...	[ - - ]	[ 266,000 ]	[ +116,000 ]	[ 382,000 ]
Unobligated balance .....	292,234	- -	- -	- -
Total available .....	12,578,690	12,843,000	+116,000	12,959,000
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture" .....	+321	- -		
Transfer in 1950 estimates from "Printing and binding, Department of Agriculture"...	-24,011	- -		
Anticipated pay adjustment supplemental .....	- -	-266,000		
Total estimate or appropriation .....	12,555,000	12,577,000		

## STATUS OF PROGRAM

Current Activities: The work consists of administering the provisions of the meat inspection law (21 U.S.C. 71-94), the horse meat law (21 U.S.C. 96), and the import meat law (19 U.S.C. 1306 (b) and (c)). The purpose of these laws is to assure the production of disease-free, clean, and wholesome meats and meat products for interstate and foreign commerce.

To accomplish this, the Bureau exercises supervision over slaughtering and meat processing operations of packing plants engaged in interstate commerce through the activities of veterinary and lay meat inspectors assigned to each plant in the number necessary for efficient inspection. The controls applied to imported meats give the American meat consuming public the same protection with respect to imported meats as with meats produced domestically. Foreign markets are kept open for exportation of American meats through a system of certification worked out under the inspection. Work is also performed for other governmental agencies on a reimbursable basis involving examinations of meat and meat products for specification compliance in connection with purchases made by such governmental agencies.

Three factors point toward an increase in the number of animals which will require inspection during the fiscal year 1951. They are (1) abundant supplies of feed, (2) high level of consumer demand for meat, and (3) an expected increase in the number of hogs marketed and a continued high level of marketing of cattle, calves, sheep and lambs.

### Recent Progress:

1. The scope of operations under the meat inspection laws is indicated by the following tables:



Number of Establishments Covered

As of Close of Fiscal Year :	Establishments :	Cities and Towns :
1944 :	896 :	343 :
1945 :	899 :	344 :
1946 :	941 :	372 :
1947 :	953 :	383 :
1948 :	940 :	356 :
1949 :	928 :	347 :

Ante-Mortem Inspection of Animals

Fiscal Year :	Animals Passed :	Animals Suspected :	Animals Condemned :	Total Animals Inspected :
1944 :	117,769,389 :	276,458 :	55,789 :	118,101,636 :
1945 :	94,130,084 :	262,347 :	46,922 :	94,439,353 :
1946 :	82,550,004 :	233,737 :	34,049 :	82,817,790 :
1947 :	83,885,502 :	236,086 :	10,594 :	84,132,182 :
1948 :	86,315,571 :	220,805 :	8,053 :	86,544,429 :
1949 :	83,220,393 :	240,002 :	6,540 :	83,466,935 :

Post-Mortem Inspection of Animals

Fiscal Year :	Carcasses Passed :	Carcasses Condemned :	Total Carcasses Inspected :
1944 :	117,656,285 :	387,774 :	118,044,059 :
1945 :	94,028,231 :	361,269 :	94,389,500 :
1946 :	82,462,169 :	319,091 :	82,781,260 :
1947 :	83,796,868 :	321,897 :	84,118,765 :
1948 :	86,220,163 :	314,486 :	86,534,649 :
1949 :	83,172,163 :	286,623 :	83,458,786 :

Ante-Mortem Inspections -- by Species

(Animals)

	1944	1945	1946	1947	1948	1949
Cattle ...	12,922,460	14,528,808	12,589,299	14,099,153	14,253,747	13,186,667
Calves ...	6,280,148	7,677,057	6,479,866	7,021,950	7,596,188	6,749,609
Sheep & Lambs ...	23,852,147	22,678,156	20,949,551	17,554,531	15,628,789	13,895,500
Goats ....	10,524	10,964	14,654	101,408	271,626	262,064
Horses*...	60,698	59,769	103,964	278,403	241,048	307,794
Swine ....	74,975,659	49,484,599	42,680,456	45,076,737	48,553,031	49,065,301
Total...	118,101,636	94,439,353	82,817,790	84,132,182	86,544,429	83,466,935

Post-Mortem Inspections -- by Species

(Carcasses)

	1944	1945	1946	1947	1948	1949
Cattle ...	12,915,664	14,518,519	12,581,268	14,093,769	14,248,351	13,182,962
Calves ...	6,273,537	7,667,156	6,463,209	7,020,235	7,595,064	6,749,001
Sheep & Lambs ...	23,837,737	22,664,800	20,953,511	17,551,638	15,627,907	13,894,311
Goats ....	10,503	10,893	14,637	101,407	271,603	262,064
Horses*...	60,501	59,674	103,880	278,346	241,036	307,785
Swine ....	74,946,117	49,468,458	42,664,755	45,073,370	48,550,688	49,062,663
Total...	118,044,059	94,389,500	82,781,260	84,118,765	86,534,649	83,458,786

\* The meat of slaughtered horses is identified as such. It is handled and prepared in separate establishments from those handling cattle, calves, sheep, swine, and goats.

Meat and Meat Food Products Prepared and Processed Under Federal Inspection by Fiscal Years

<u>Fiscal Year</u>	<u>Pounds</u>
1944	16,707,585,974
1945	13,408,978,079
1946	12,250,086,608
1947	11,888,911,964
1948	12,610,658,151
1949	13,381,083,144

Meat and Meat Food Products Classified by Type of Product

Product	1947 Quantity (lbs.)	1948 Quantity (lbs.)	1949 Quantity (lbs.)
Placed in cure:			
Beef .....	92,155,779	112,062,827	120,720,960
Pork .....	2,708,532,792	2,996,068,892	3,213,574,534
Smoked and/or dried:			
Beef .....	41,235,453	66,081,959	55,987,753
Pork .....	1,636,767,551	1,786,506,044	1,990,532,562
Sausage:			
Fresh finished .....	249,203,404	227,036,305	242,795,972
Smoked and/or cooked ..	976,167,713	971,645,660	961,851,503
To be dried or semi-dried .....	121,178,937	118,964,978	118,735,086
Loaf, headcheese, chili con carne, jellied prod., etc. ....	190,986,294	188,939,595	180,369,664
Cooked meat:			
Beef .....	28,167,970	29,928,456	29,799,827
Pork .....	457,174,208	519,492,894	552,006,645
Canned meat and meat food products:			
Beef .....	127,047,466	133,647,742	107,112,944
Pork .....	479,556,952	466,447,872	469,894,388
Sausage .....	82,336,324	108,153,510	83,493,448
Soup .....	427,176,575	446,434,973	402,232,097
All other .....	431,642,900	412,838,087	425,945,237
Bacon, sliced .....	526,279,208	555,601,466	679,605,650
Lard:			
Rendered .....	1,458,778,606	1,597,280,620	1,680,868,655
Refined .....	1,097,302,388	1,187,190,093	1,354,200,766
Rendered pork fat:			
Rendered .....	85,516,742	79,773,805	90,387,324
Refined .....	50,257,233	43,749,988	54,840,402
Oleo stock .....	93,782,996	77,579,775	89,275,032
Edible tallow .....	82,082,547	69,143,099	75,697,290
Compound containing animal fat .....	246,792,511	250,937,300	202,775,520
Oleomargarine containing animal fat .....	33,713,065	24,115,763	26,390,268
Miscellaneous .....	41,757,979	76,886,836	91,065,049
Horse meat products:			
Cured .....	12,400,102	11,720,338	9,498,650
Chopped .....	27,031,798	21,243,479	25,274,771
Canned .....	83,870,681	30,620,858	43,108,666
Rendered fat .....	15,790	564,937	3,042,481
Total .....	11,888,911,964	12,610,658,151	13,381,083,144



Examination of Meat and Meat Food Products for  
Other Government Agencies (Reimbursable)

Branch of Government	1947 (Pounds)	1948 (Pounds)	1949 (Pounds)
Department of the Navy	92,255,178	215,351,425	219,607,657
Commodity Credit Corp. (supply programs)	76,282,646	36,293,255	--
Coast Guard	420,127	1,203,232	1,383,266
War Shipping Administration	260,754	--	--
Marine Corps	28,127	461,997	12,204
Department of Interior	421,700	199,300	5,536
Veterans Administration	1,467,481	3,148,551	3,824,310
Department of the Army	110,964	86,149	94,489
Maritime Commission	322,998	62,752	7,192
Department of Justice	5,560	76,084	157,297
All others	52,306	60,706	30,944
Total	171,627,841 1/2	256,943,451 2/3	225,122,895 3/4

1/ Includes 1,563,342 pounds rejected.

2/ Includes 3,049,722 pounds rejected.

3/ Includes 2,184,396 pounds rejected.

Summary of Samples Examined in Laboratories for  
Determination of Adulteration or Other Objectionable  
Conditions, Fiscal Year 1949

	<u>Number examined</u>	<u>Reported adversely</u>
Meat and meat food products .....	12,817	1,928
Edible fats and oils .....	511	52
Cereals, spices, and condiments, dried skim milk, soya flour .....	3,951	73
Curing materials .....	1,814	39
Water .....	1,886	154
Miscellaneous .....	2,260	187
Samples of animal foods .....	183	11
Imports .....	464	29
Total .....	<u>23,886</u>	<u>2,473</u>

Examination of Labels and Sketches, Fiscal Year 1949

Number of labels and sketches approved ..... 26,837

Number of labels approved for imported meat .....	156
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Number of labels and sketches refused approval .....	2,741
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Total number of labels and sketches reviewed ..... 29,734

Inspection of Imported Meat and Meat Food Products

Fiscal Year

Pounds

1945	92,178,607
1946	64,484,876
1947	57,832,177
1948	86,404,884
1949	254,519,299*

\* Increase reflects relaxation of export restrictions in some foreign countries, especially Canada.

2. Over 30 percent of hogs from the Corn Belt and nearly 55 percent of hogs from the South showed liver damage caused by larval roundworms, as determined by studies in Federally-inspected establishments. Most of the lesions were on the surface of the liver; no live or dead parasites were found in the few lesions discovered deep in the liver substance.
3. A 3-1/3 percent concentration of salt added to ground trichina-infected pork killed the trichinae in shorter periods than weaker concentrations. Trichinae in infected meat chopped to pieces about 3/4 of an inch in diameter survived in the same salt concentrations longer than those in meat ground in a fine meat chopper. Salt is a constituent of all curing mixtures.
4. Studies of source and stage of contamination of fresh sausage meat indicate that multiplication of bacteria in the meat during the time required to process it into sausage is far more important than external contamination in determining bacterial count.
5. Approximately 700 pathological and bacteriological examinations were made for the diagnosis of disease conditions and abnormalities of food animals and for the determination of spoilage and adulteration of meat and meat products.
6. Histologic studies of hog livers showing lesions caused by migratory parasites failed to show that such lesions found at slaughter contained live parasites.
7. Studies of hemorrhages in the thymus, frequently found in otherwise normal calf carcasses, failed to show any pathological basis for the hemorrhages. The condition was identified as thymic hemorrhages incident to slaughter.

(g) Virus Serum Toxin Act

(over)

The 1951 Budget estimates propose the transfer in the estimates of this item to the subappropriation "Animal Disease Control and Eradication." Therefore, the work formerly reported under the heading "Virus Serum Toxin Act" is now included under (d) Animal Disease Control and Eradication.

CHANGE IN LANGUAGE...

The estimates propose deletion of language for this item as follows:

[Virus Serum Toxin Act: For carrying out the provisions of the Act approved March 4, 1913 (21 U. S. C. 151-158), regulating the preparation, sale, barter, exchange, or shipment of any virus, serum, toxin, or analogous product manufactured in the United States and the importation of such products intended for use in the treatment of domestic animals, \$394,000.]

This change in language provides for the deletion of the subappropriation item "Virus Serum Toxin Act" in accordance with the proposed consolidation of this item with "Eradicating tuberculosis and Bang's disease" and "Inspection and quarantine" under a new item "Animal disease control and eradication."



(h) Marketing Agreements, Hog Cholera Virus and Serum

Appropriation Act, 1950 .....	a/	\$47,500
Anticipated pay adjustment supplemental, 1950 .....	a/	1,300
Base for 1951 .....		48,800
Budget Estimate, 1951 .....	a/	49,300
Increase (To place on a full-year basis in 1951, pay adjustments under P. L. 429 which were in effect for only a part of fiscal year 1950) .....		+500

a/ Transfer from the unobligated balance of the appropriation provided by section 12(a), Title I, of the Agricultural Adjustment Act of May 12, 1933.

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949 actual	1950 (estimated)	Increase : P. L. 429 : adjustment:	1951 (estimated)
1. Marketing agreements				
with respect to hog				
cholera virus and serum..	\$43,473:	\$48,800:	+\$500:	\$49,300
Total pay adjustment costs,:				
Public Law 429 .....	[- -]:	[1,300]:	[+500]:	[1,800]
Unobligated balance .....	3,565:	- -:	- -:	- -
Total available .....	47,038:	48,800:	+500:	49,300
Transferred from "Salaries				
and expenses, Agri-				
cultural Adjustment				
Administration" .....	-47,038:	-48,800:		-49,300
Total estimate or				
appropriation .....	- -:	- -:		- -

# STATUS OF PROGRAM

Hog cholera continues to be the most important disease of swine in the United States. Adequate supplies of hog cholera virus and anti-hog cholera serum are essential for use in routine immunization of swine to assure adequate hog production, and especially for use in any emergency arising from an extensive outbreak of the disease.

A Marketing Agreement has been entered into between the Secretary and the manufacturers and other handlers of hog cholera virus and anti-hog cholera serum to assure adequate supplies of these biological products. The Marketing Order issued by the Secretary (7 U.S.C. 581-585) covers marketing in interstate and foreign commerce and is designed to prevent undue and excessive fluctuations in price, unfair methods of competition, and unfair trade practices.

A control agency representing the industry has been set up to apply the Marketing Agreement, to receive and investigate violations, and to make reports to the Secretary of its activities. Activities under this item include reviewing acts of the control agency, assembling economic data relating to production, sales, prices, etc., attendance at meetings, conferences on proposed amendments to the agreement, etc.

The following table gives comparative figures by fiscal years of the number of handlers operating under the Marketing Agreement:

	Actual		Estimate	
	1948	1949	1950	1951
Producers-Handlers .....	35	34	36	36
Distributor-Handlers or equivalent				
including Wholesale Purchasers				
and Handlers.....	240	243	246	250

[illegible]

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(i) Eradication of Foot-and-Mouth and Other  
Contagious Diseases of Animals and Poultry

Appropriation Act, 1950 .....	<u>1/</u>	- -
Budget Estimate, 1951 .....	<u>1/</u>	- -
Change .....	<u>1/</u>	<u>- -</u>

1/ In addition to prior year balance of \$5,928,887 available in fiscal year 1950, advances from the Commodity Credit Corporation are being made pursuant to the provisions of the Department of Agriculture Appropriation Act, 1950, authorizing the Secretary to transfer from other funds of the Department the amounts necessary for the control and eradication program, subject to later reimbursement when an appropriation therefor is made. Pending the availability of information necessary to determine the requirements of the program in 1950 and 1951, and the submission of supplemental estimates therefor, the Budget Estimates propose to continue the language authorizing the Secretary to transfer from other funds of the Department the amounts necessary for the eradication of the disease.

The estimates include a proposed change in language for the sole purpose of correcting the code supplement number.

## STATUS OF PROGRAM

History and development: The existence of foot-and-mouth disease in Mexico was confirmed December 26, 1946. Public Law 8, authorizing the Secretary of Agriculture to cooperate with the Government of Mexico to eradicate, suppress, or control the outbreak, was approved February 28, 1947. The Mexican-United States Commission for the Eradication of Foot-and-Mouth Disease was established through an exchange of diplomatic notes between the two governments on March 17 and 18, 1947. The first appropriation (\$9,000,000) for cooperative work with Mexico was approved March 27, 1947. Commission offices were established in Mexico City on April 10, 1947.

The original plan of eradication included the slaughter and burial of infected and exposed animals, the maintenance of quarantines, and disinfection operations--practically the same methods that had been used with success during outbreaks in the United States. Some modifications were necessary to meet Mexican conditions and customs. For instance, since oxen are the chief draft animals in Mexico and since large numbers of them were affected with the disease, it became necessary to establish a program of replacing slaughtered oxen with mules. This was to enable food production on Mexican farms to continue. The plan of eradication provided for the payment of indemnities, based on fair appraised value, for all cattle, swine, sheep, and goats destroyed. Mexican and United States veterinarians, technicians, appraisers, paymasters, and other trained workers generally worked in pairs under the direction of the Joint Commission. The Mexican National Army has aided in the campaign largely by providing protective services and cooperating in quarantine enforcement.

Slaughtering operations were going forward at the rate of about 50,000 animals a week early in November 1947, yet the spread of the disease to new areas showed that local quarantine restrictions were not being enforced. Moreover, a strong sentiment was developing among the Mexican people and their officials for a change to a less drastic program. An appraisal at that time indicated that a continuation of the slaughter plan, without modification, to eradicate the disease from Mexico might mean the destruction of between 4,500,000 and 5,000,000 cattle and a similar number of swine, sheep, and goats. Mexican officials presented to the Commission their conclusion that the country could not stand the economic shock of this wholesale destruction.

After detailed study of the program, the Joint Commission agreed to a change, effective November 26, 1947. The principal features of the revised program as agreed upon at that time included:

- (1) strengthening the quarantine lines at the northern and southern boundaries of the main infected area,
- (2) conducting extensive inspections to determine where infection exists,
- (3) the prompt disposal, by slaughter, of infected and exposed animals in centers of active infection located in the work areas,



- (4) the cleaning and disinfection of premises, of trucks, cars, and other things that had been exposed to the disease and might harbor the virus, and
- (5) the vaccination of healthy susceptible animals to build up their resistance to the disease.

The plan provided for vaccine production in Mexico as well as purchase of vaccines in foreign countries. The Department undertook to carry forward the work then under way to furnish a market outlet for cattle in northern Mexico in the form of canned meat.

Thorough inspections repeated several times throughout the areas adjacent to quarantine lines were effective in holding back movements of animals toward the lines from the infected area and showed that a very considerable zone immediately south of the northern quarantine line could safely be removed from the quarantine restrictions. This was done in five stages--the last being on January 14, 1949, when 4,900 square miles were removed from the quarantine area, making a total of about 43,000 square miles that have been released from quarantine. On November 3, 1948, it was necessary to restore the quarantine to about 600 square miles near the western end of the northern quarantine line as a precautionary measure because of the discovery of an area of active infection dangerously near the line.

Centers of infection near the northern quarantine line in the States of Zacatecas, Aguascalientes, San Luis Potosi, and the Huasteca area of northern Veracruz, were eradicated by the slaughter method and the premises cleaned and disinfected. Although the number of animals involved and the spread of the infection in each case were limited, the success of those activities in the face of considerable resistance to any slaughter was an encouraging indication of the effectiveness of the organization and the measures used. In southern Veracruz, near the quarantine line at the lower extremity of the infected area, a "buffer" area was cleaned of infected and exposed animals and an outbreak in the State of Tabasco beyond the lower quarantine line was eradicated, all by the slaughter method.

Vaccination production progress: Immediate attempts were made to obtain suitable vaccine from countries maintaining production facilities following the change in program. It was necessary to obtain vaccine made from type A virus and, as quickly as possible, the Mexican variant of type A virus was supplied the producing countries for use in the production of vaccine for Mexico. Supplies of vaccine were limited and the problems of shipping and maintaining controlled-refrigeration of the product while in transit seriously hampered the application of this phase of the program. It was also necessary that all vaccines, before use in the field, be tested for innocuity to make certain that the product was safe for use, and tested for potency to be sure the product was reasonably effective when used under conditions existing in Mexico. Vaccinations were begun in selected areas which were most in need of reinforcement. The first vaccine used, comprising 25,000 doses, was produced in Argentina. Vaccines have been purchased from Argentina, The Netherlands, Switzerland, and Denmark.

In order to produce vaccine in Mexico it was necessary that facilities be established practically from the ground up. This was expedited by



sending equipment and supplies and trained personnel from the United States. The first vaccine actually produced in Mexico was in May 1948. By the end of June 1948 three lots of vaccine, comprising 45,000 doses, had been produced and facilities developed for production of increasing amounts in succeeding months.

The work of vaccine production and testing was greatly speeded up so that for the past year the Commission has not needed to rely upon vaccines imported from abroad. At present about 4,000,000 doses are being produced each month. Through November 30, 1949, the total amount of vaccine produced in Mexico was over 38,000,000 doses. Very severe laboratory tests of the vaccine produced in Mexico indicate that the Commission vaccine is of excellent quality.

Inspection and vaccination program: The work of inspection and vaccination moved steadily southward on a solid front from the northern quarantine line and northward from the southern quarantine line, immunizing all the susceptible animals encountered. The probable duration of resistance to the disease imparted by the vaccine was thought to be six months. However, it was found that the protection given by the vaccine could not be relied upon for more than 4 months. Accordingly, the period between vaccinations was reduced from 6 months to 4 months. Accordingly, the period between vaccinations was reduced from 6 months to 4 months, thus adding about one-third to the vaccination requirements to maintain a reasonably high degree of immunity for an extended period of time. Active infection encountered in this work was dealt with by slaughter, and infected premises were cleaned and disinfected. Constant reinspections of the animals in and near the work areas before and after vaccinations provided information upon the effectiveness of the methods used and insured against accidental outbreak of the disease behind the lines.

Present Outlook: By the end of April 1950, if the numbers of outbreaks are few and other indications are that the active virus has been virtually eliminated, it is planned that mass vaccination will be terminated. All production of vaccine would cease, with thorough cleaning and disinfection of the production and testing facilities. The quarantine lines would be maintained and the inspection service continued so that any outbreak of the disease might be quickly discovered. It is expected that there would be some sporadic outbreaks and these would have to be eradicated in the manner outlined previously, followed by careful reinspection and revaccination of all the susceptible animals in the surrounding area. It is probable that these inspections and other procedures would have to be followed for several years, but perhaps with diminishing intensity after the first year of such work if it appeared that the disease was in fact virtually eradicated. As the scope of this project is far beyond that of any eradication project attempted heretofore, there is no way of knowing whether it will be ultimately successful. However, the progress of the work during the past shows and the present indications are that the plan of the program is sound, and further, that barring unfortunate contingencies, there is reason for confidence that the disease will be eradicated in Mexico within a reasonably short period of years.

Current activities: Present activities include the following more important developments:

1. Quarantine lines are being maintained across Mexico at the

northern and southern extremities of the infected area as shown on the accompanying map, which also shows the positions of the original quarantine lines and the areas now freed from the quarantine restrictions. At each road crossing of the lines, quarantine stations are maintained with military personnel for enforcement and Commission personnel to inspect for the presence of prohibited animals or animal products and to see to the disinfection of vehicles. Where railroads cross the quarantine lines, similar quarantine enforcement posts are maintained at the nearest stations within the quarantined area. Along the quarantine lines between rail and road crossings there is a thin patrol of Mexican Army personnel as a deterrent against illegal shipments. Very little is accomplished to prevent straying of animals across the line. These straying animals ordinarily do not move very far and do not present a very great risk, although it is recognized that there is some danger involved. However, no means have been discovered whereby straying can be stopped. At the eastern end of the northern quarantine line in the rich Huasteca cattle raising area about 130 miles of the line have been fenced. In the maintenance of the quarantine lines, much assistance is gained from the fact that the lines are so placed that with the exception of the main highways and railroads there is little interchange of commerce. Thus, concentration of the quarantine effort at the main highway and rail crossings has effectively held the disease from spreading across the quarantine lines.

Restrictive quarantines are placed immediately on all premises where active infection is encountered to protect against spread of the infection. This quarantine is maintained until the infection has been destroyed and the premises thoroughly cleaned and disinfected.

Another important quarantine activity involves the supervision of movements of animals within the quarantined area. The Commission aids in enforcement of the Mexican Government regulation prohibiting the movement of animals from place to place unless they have been vaccinated in accordance with the requirements of the Commission. Enforcement of this regulation has been beneficial in the effort to obtain proper vaccination of all the susceptible animals.

2. Thorough inspections repeated several times have extended throughout the quarantined area, including as nearly as possible all the susceptible animals (cattle, sheep, swine and goats). It is realized that many animals are missed in these inspections, perhaps more than 20 percent of them. However, repetition of the inspections, constant watchfulness in the areas, and the employment of Spanish-speaking United States livestock inspectors has permitted quite an accurate evaluation of the existence or nonexistence of the disease. It is significant that the disease has not since appeared in any of the areas declared free after these repeated inspections.

Since the vaccination program has been under way, inspection has preceded the vaccination crews. Active infection thus encountered



is confirmed by Mexican and United States veterinarians and, if necessary, by laboratory confirmation. Each one is dealt with by the slaughter method. Following vaccination, inspection crews again inspect the animals at about 30-day intervals. Centers of active infection thus discovered are also dealt with by slaughter. An arrangement has been worked out whereby each inspection team is assigned a definite area. Members of the teams thus gain close acquaintance with the people of the area, and full knowledge of the numbers, classes, and location of livestock. It is believed that this arrangement has resulted in a much higher percentage of the animals being inspected as well as in a much better relationship with the farmers and other local people. These inspection teams are regularly inspecting more than 8,000,000 animals each month.

3. Slaughter operations were performed almost daily from October 1948 to the middle of April 1949. Several of the outbreaks were quite extensive and located near the northern quarantine line so that great apprehension was felt lest the infection break out of control and breach the quarantine line. Although the numbers slaughtered daily were small, the total was considerable and the infection had a discouraging way of reappearing in an area after it had been thought to be under control. In at least six instances in the States of Jalisco and Guanajuato, infection appeared in previously vaccinated animals. In some of these cases it was thought that the animals had been exposed before the vaccine could take effect. In other cases it appeared that the infection, first showing up among unvaccinated animals that had been moved into the area, was so strong that the protection of vaccinated animals was not sufficient to withstand the exposure. Study of these cases furnished information which, combined with experimental work done in the laboratories in Mexico City, clearly indicated that the protection given by the vaccine could not be relied upon longer than four months. Accordingly, the second vaccination was begun immediately and since then the numbers of centers of active infection discovered have been materially reduced.

Following completion of the first wave of vaccination early in August 1949, there was a long period during which no cases of active infection were discovered. Then on October 17, infection was reported in a herd in the State of Puebla near Mexico City. This new outbreak was quite severe and laboratory and animal inoculation tests indicated that it was a type different from that which had been previously experienced in Mexico. Samples of virus from the herd were sent to Foot-and-Mouth Disease Research Institute at Pirbright, England, and the Director of the institute advised that the virus in the samples was found to be of Type O. In the meantime the animals had all been slaughtered and buried and the premises given the most thorough cleaning and disinfection. A careful reinspection and revaccination was made of all the susceptible animals within a radius of about 15 miles of the affected premises. Similar reinspection and revaccination was carried out in all the areas where there had been any contact with the infected herd. Fortunately no extension of the Type O infection from the premises was discovered.

Within the next few weeks other centers of infection were encountered in central and lower Veracruz. In these two latter cases the infection was



found to be caused by the Type A virus. Eradication of the outbreaks and reinspection and revaccination in the surrounding areas were carried out as described above.

During the first six months of 1949, there were 7,329 animals that had to be slaughtered and buried because of infection with or exposure to foot-and-mouth disease. During the second six months of 1949 the number was reduced to 592 animals through November. The infrequency with which centers of active infection are encountered now as compared with the numbers found preceding the first wave of vaccination gives a very encouraging indication that the virus of the disease is in fact being starved out.

4. Premises have been thoroughly cleaned and disinfected in each case where active infection has been found. In addition, barns where cattle and other livestock are confined and where it is known that the disease has been present at some time since the beginning of the epidemic in 1946, are systematically cleaned and disinfected. Disinfection is not being done in the case of uncovered corrals and open stables where the animals are not closely held and where it is considered that the action of the sunshine and other elements will be active to destroy the virus.

There is an extensive system of regular cleaning and disinfection of livestock cars and trucks and other vehicles carrying animal products within the quarantined area. Also, there is a regular disinfection procedure at highway and rail junctions and airports to protect against accidental carrying of the virus from the quarantined area.

During each month about 21,000 trucks, 5,000 railroad cars, and 2,000 other cargo-carrying vehicles are cleaned and disinfected. No count is made of passenger vehicles.

5. Facilities for the manufacture of vaccine in Mexico were first established on a temporary basis and the first lot of vaccine was prepared in May 1948. The vaccine held up well under test and so the facilities were expanded and a maximum effort was made to increase the production of vaccine so that the field forces would not need to rely upon foreign-produced vaccine. The increase in production was extremely rapid. By October 1948 the rate was 1,000,000 doses per month and by August 1949 it was over 5,000,000 doses. Since then, although greater production is possible, the production has been held at approximately 4,000,000 doses per month which is presently sufficient to supply the field crews and to maintain an ample reserve.

Each lot of the vaccine is subjected to severe tests to insure its innocuity so that it will not transmit the disease and its potency so that it will protect against severe exposure to the disease. Until recently it has not been possible to run comprehensive duration of immunity tests to determine how long the vaccinated animal is protected against exposure. There are indications that the protection given by subsequent vaccinations is slightly longer than that conferred by the initial vaccination. However, it does

not appear that the period is sufficiently longer to warrant changing the time interval of 4 months between vaccinations.

The objective of the vaccination part of the program in the field is to vaccinate all of the cattle, sheep, swine, and goats in successive waves, beginning near the outer quarantine lines and working toward the center. The first wave of vaccinations was completed in August 1949, with over 13,000,000 animals recorded. The second wave was completed in December 1949. Third and fourth waves are in progress. As of November 30, 1949, more than 34,000,000 vaccinations had been made. It will be necessary to vaccinate and revaccinate, thus maintaining a level of resistance among all the susceptible animals without the occurrence of infection for a period of time sufficient to show that the disease has been eradicated. It is contemplated now that by May, 1950, the third wave of vaccination will be completed and the fourth wave carried far enough to cover the areas that were previously heavily infected.

6. Protective measures in the United States continue to be carried out along the following lines:

(a) An extensive border patrol is maintained along the entire Mexican-United States boundary to enforce the embargo upon the importation of ruminants and swine from Mexico and the restrictions upon importation of products that might bring in the virus of foot-and-mouth disease. The present quarantine on the Mexican-United States border is based on Federal legislation that applies also to quarantine measures in effect at sea-board ports with respect to other countries where foot-and-mouth disease exists. The Tariff Act of 1930 included an absolute prohibition against the importation into the United States of designated animals and products from countries where foot-and-mouth disease or rinderpest exists. In accordance with the mandate of the Tariff Act, the Secretary of Agriculture imposed the quarantine on importations of specified animals and products from Mexico promptly after the outbreak of foot-and-mouth disease in that country. There are now about 600 employees engaged in patrol of the border. This force patrols the border in two shifts of 7 hours each, 7 days per week. At critical points continuous supervision is provided around-the-clock. This work is done in close cooperation with the Bureau of Customs and other Federal agencies operating along the border. In December 1948 an arrangement was made with the Bureau of Customs whereby some 65 key members of the Bureau of Animal Industry's border patrol have been designated as Customs agents, thus permitting a closer working relationship and avoidance of duplication of patrol forces along the border.

(b) There are immediate investigations of suspected cases of animal diseases that simulate foot-and-mouth disease. These cases arise in all parts of the country. Since the outbreak of foot-and-mouth disease in Mexico, there have been many such cases reported. The investigations so far have, without exception, shown the condition to be something other than foot-and-mouth disease. During the past year there have been unusually large numbers of cases of vesicular stomatitis, a disease that very closely resembles foot-and-mouth disease in its appearance although it is far less damaging to the animals. Specially trained diagnosticians have been used to go to premises where this disease appears, to make sure



that the condition is not foot-and-mouth disease. A good many other conditions of livestock affecting the mouths, feet and udders, are constantly occurring in all parts of the country and require immediate and careful investigation to be sure that foot-and-mouth disease has not accidentally gained entrance into the country and remained undetected. The success or failure of the eradication effort in any future outbreak of foot-and-mouth disease will probably depend upon the promptness with which the outbreak is discovered and reported and the accuracy of the diagnosis. In each of these investigations, the Bureau of Animal Industry inspectors work side by side with State livestock sanitary officials who provide local quarantine enforcement. In that way, the State and Federal agencies are fully informed and their representatives are present to meet any emergency.

(c) State livestock sanitary officials are consulted in plan-making in order to be prepared for instant action in the event foot-and-mouth disease should be found in any part of this country.

(d) Inspections are made at public stockyards throughout the country to detect animals showing symptoms suspicious of foot-and-mouth disease in order that the existence of this disease may be quickly ascertained, if it should enter the country. Early detection of the disease would permit the taking of prompt action to prevent its spread.

7. Cooperative research liaison is maintained with foreign foot-and-mouth disease research stations. A serious epizootic of foot-and-mouth disease in western Europe last year materially curtailed cooperative research work in Denmark, England, and The Netherlands. In addition, the laboratory in England has been called upon to assist in controlling an outbreak of the disease in Africa. It has been possible for the English laboratory to continue serological typing work applicable in the Mexican program, but in continental Europe increasing demands on laboratories to meet needs for the control programs in the several countries, particularly in the production and testing of vaccines, have limited work planned. Serious problems in vaccine production have arisen in the Allied Occupied Zones of Germany, owing to the appearance there of variants in the type of foot-and-mouth disease virus, a possibility wherever the disease occurs.

Despite these and other handicaps, qualified United States personnel are being assigned to cooperative research in Europe as facilities are available for their work there. Three scientists are presently assigned to cooperative work at the Foot-and-Mouth Disease Research Institute on Lindholm Island, Denmark; two are working at the State Institute for Veterinary Research at Amsterdam; and a sixth scientist is studying at the Research Institute at Pirbright, England. Equipment needed for experimental work in these countries, but not available there, has been obtained in the United States for the cooperative work. Studies of diagnostic procedures and of modifications of the composition and use of vaccine are under way, together with physical and chemical investigations of the causative virus.

The information on techniques of production of prophylactic vaccine obtained by United States scientists from their work in European laboratories has been applied directly in the vaccine production program in Mexico. Necessary



adaptations to production in Mexico have been made. Scientists who studied these techniques in Europe have been assigned to Mexico where their technical knowledge and experience are being devoted especially to problems of vaccine production and serological identifications of prevailing types of virus.

Vaccine production in Mexico has so severely taxed the existing isolation facilities in Mexico that there has been little opportunity to conduct research there. It has been possible to carry on several important collateral investigations directed toward determinations of the character of prevailing strains of virus, and possible improvements in the vaccine.

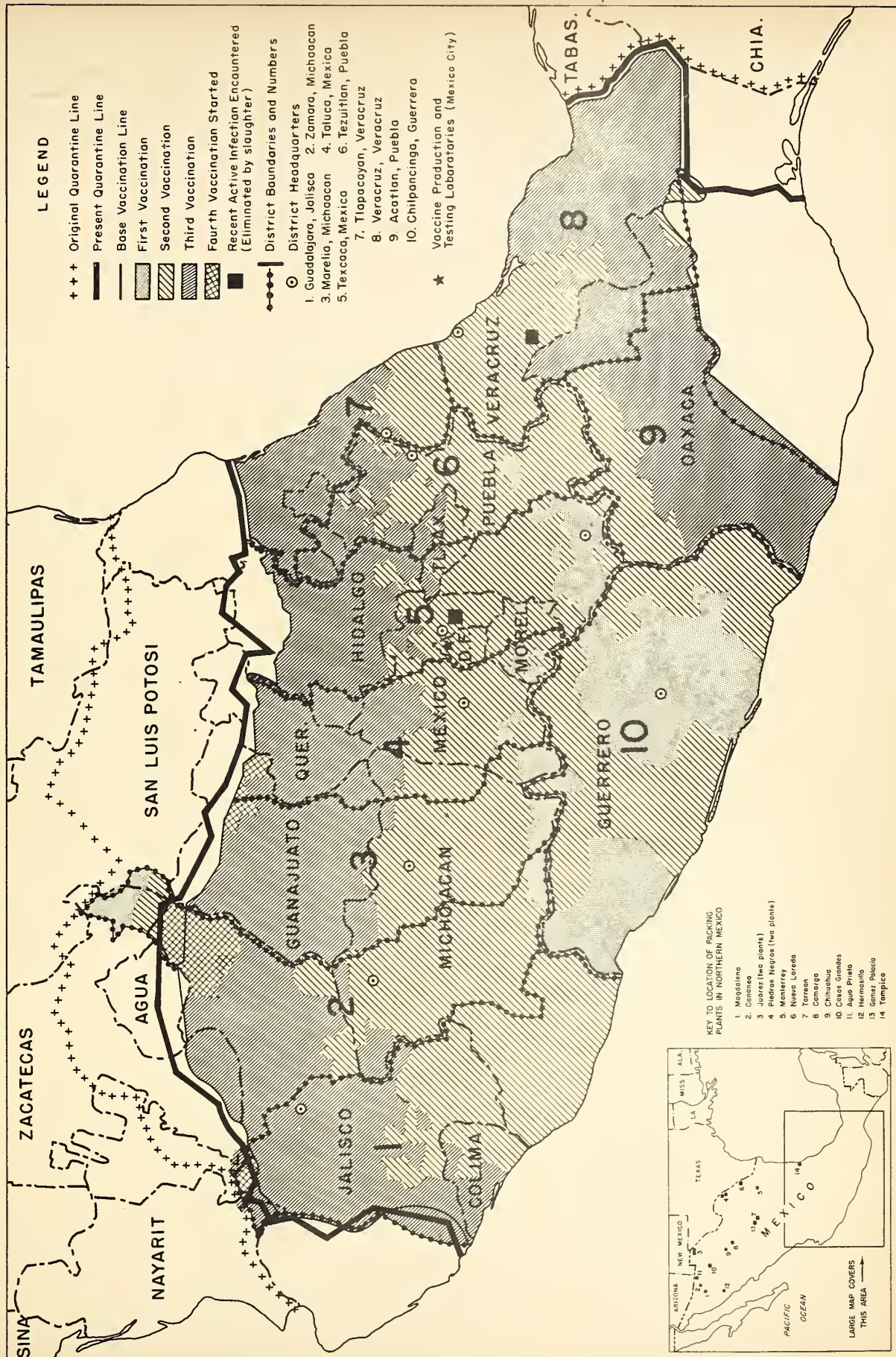
8. The Canned Meat Purchase Program in Mexico: This program is a precautionary measure to reduce the possibility of the spread of foot-and-mouth disease into northern Mexico and the United States. Since the outbreak of the disease in Mexico importations of cattle from Mexico into the United States have been prohibited. The purchase of canned meat in northern Mexico provides a market outlet for the surplus cattle of that area that would have been exported to the United States except for the embargo.

During the fiscal year 1948 the Department purchased 40,500,000 pounds of canned meat and 136,000,000 pounds during the fiscal year 1949, providing, since the program's inception, an outlet for about 740,000 cattle from northern Mexico. Sufficient outlets for the canned meat in the fiscal year 1948 enabled that year's program to operate without a loss. However, as a result of heavy purchases, unfavorable sale prices, and a lack of outlets for the commodity, substantial losses have been incurred on purchases made in the fiscal year 1949. On December 1, 1949, about 33,000,000 pounds of meat purchased in 1949 remained to be disposed of. It is anticipated that less meat will be purchased in the future, and, in addition, purchase prices have been reduced. A combination of these factors should reduce 1950 losses to \$4,000,000 on purchases made in the fiscal year.

# THE FOOT-AND-MOUTH DISEASE SITUATION IN MEXICO

NOVEMBER 10, 1949

BASED ON REPORTS RECEIVED BY THE U.S. DEPARTMENT OF AGRICULTURE









OBLIGATIONS AND FUNDS PROVIDED FOR CONTROL AND ERADICATION OF FOOT-AND-MOUTH DISEASE  
(As of November 26, 1949)

	F. Y. 1947	F. Y. 1948	F. Y. 1949	F. Y. 1950 (as of November 26, 1949)	Total
<u>Obligations</u>					
<u>Control and eradication activities:</u>					
<u>Payments made to the Mexican-United</u>					
States Commission for the Eradication					
of Foot-and-Mouth Disease in Mexico .....	\$ 9,000,000	\$22,000,000	\$10,030,000	\$ 5,205,000	\$46,235,000
Direct Federal expenses for program in					
Mexico .....	1,152,451	5,803,470	7,224,733	3,698,160	17,878,814
Enforcement of Mexican border quarantine ...	272,399	1,952,415	2,850,000	1,220,530	6,295,344
Inspection at public stockyards and in the					
field to detect immediately any possible					
introduction of foot-and-mouth disease	1,865	116,661	166,000	82,716	367,242
into the United States .....					
Short-term research on foot-and-mouth					
disease .....	- -	94,920	258,000	157,817	510,737
Total .....	10,426,715	29,967,466	20,528,733	10,364,223	71,287,137
<u>Meat purchase program in Northern Mexico:</u>					
Purchase of canned meat and meat products					
in Northern Mexico .....	- -	11,300,240	37,620,418	8,603,000	57,523,658
Administrative expenses incident to meat					
purchase .....	- -	74,424	202,381	46,000	322,805
Handling charges (canned meat) .....	- -	1424,742	1,607,137	159,000	2,190,879
Total .....	- -	11,799,406	39,429,936	8,808,000	60,037,342
Interest on funds borrowed from CCC .....	- -	211,398	349,888	272,000	833,286
TOTAL OBLIGATIONS .....	10,426,715	41,978,270	60,308,557	19,444,223	132,157,765

*Submitted  
this 35/1/50  
J. H. ...*

OBLIGATIONS AND FUNDS PROVIDED FOR CONTROL AND ERADICATION OF FOOT-AND-MOUTH DISEASE--Continued  
(As of November 26, 1949)

Obligations--Continued	F. Y. 1947	F. Y. 1948	F. Y. 1949	F. Y. 1950 (as of November 26, 1949)	Total
Deduct: Application of gross receipts from sales of canned meat and from inspection fees a/ .....	- -	-12,010,804	-13,837,640	-291,000	-26,139,444
NET TOTAL OBLIGATIONS (NET OF RECEIPTS FROM SALE OF MEAT) .....	10,426,715	29,967,466	46,470,917	19,153,223	106,018,321
Funds Provided					
By CCC:					
Gross transfers of funds .....	- -	36,975,000	63,200,000	15,310,000	115,485,000
Interest costs on funds transferred; and handling charges, canned meat .....	- -	636,140	1,957,025	431,000	3,024,165
Total .....	- -	37,611,140	65,157,025	15,741,000	118,509,165
1948 transfers available in 1949 .....	- -	-200,336	+200,336	- -	xxx
1949 transfers available in 1950 .....	- -	- -	-5,928,887	+5,928,887	xxx
Net total .....	- -	37,410,804	59,428,474	21,669,887	118,509,165
Less:					
Application of gross receipts from sales of canned meat and from inspection fees a/	- -	-12,010,804	-13,837,640	-291,000	-26,139,444
Repayments of funds transferred from appropriations therefor .....	- -	-25,400,000	-34,000,000	- -	-59,400,000
Unreimbursed transfers .....	- -	-0-	11,590,834	21,378,887	32,969,721
By Appropriations .....	10,805,000	30,500,000	34,000,000	- -	75,305,000
Net Total Funds Provided .....	10,805,000	30,500,000	45,590,834	21,378,887	108,274,721

OBLIGATIONS AND FUNDS PROVIDED FOR CONTROL AND ERADICATION OF FOOT-AND-MOUTH DISEASE--Continued  
(As of November 26, 1949)

Funds Provided--Continued	F. Y. 1950 (as of November 26, 1949)				Total
	F. Y. 1947	F. Y. 1948	F. Y. 1949		
Unobligated Balances:					
Not available in subsequent year - trans-					
ferred to Treasury .....	-30,736	-	-	-	-30,736
Available in subsequent year .....	347,549	-880,083	-	-	xxx
Prior year balance available .....	-	+347,549	+880,083	-	xxx
Available as of date of report .....	-	-	-	-2,225,664	-2,225,664
Totals .....	-378,285	-532,534	+880,083	-2,225,664	-2,256,400
NET TOTAL OBLIGATIONS (AS ABOVE) .....	10,426,715	29,267,466	46,470,917	19,153,223	106,018,321

2/ Gross receipts are reflected herein as applications in the fiscal year in which the sales contracts are executed. Receipts on a cash basis, by fiscal years, are as follows:

Fiscal year 1948	\$9,773,428
Fiscal year 1949	8,816,346
Fiscal year 1950	7,549,670
Total	26,139,444



MEXICAN-UNITED STATES COMMISSION FOR THE ERADICATION  
OF FOOT-AND-MOUTH DISEASE

Statement of Commission Receipts, Disbursements, and Available Cash 1/

As of November 26, 1949

Cash and Disbursements

Pesos

Pesos

Cash:	
In Banks .....	1,917,380
In hands of United States Paymasters and other employees .....	7,192,712
Disbursements:	
Indemnities:	
Cattle .....	125,983,601
Small animals .....	13,011,623 2/
Expenses of Commission .....	176,247,905
Total .....	315,243,129
	324,435,841

Funds made available to the Commission

Payments to the Commission:	
By the United States .....	269,086,634 3/
By Mexico .....	35,945,715 2/
	305,032,349

# Funds made available to the Commission--Continued

## Receipts:

Vaccine testing .....	16,655,812	
Other (salvage of animals, return of indemnities on delivery of mules, etc.) .....	<u>2,747,680 4/</u>	<u>19,403,492</u>
Total .....		<u><u>324,435,841</u></u>

- 1/ Because of the change in the rate of exchange, this statement is made in pesos. However, the major portion of expenditures were made when the rate of exchange was 4.85 pesos.
- 2/ Includes indemnities in amount of 7,515,813 pesos, paid by Mexican Government prior to October 3, 1947, which are now considered a contribution by the Mexican Government.
- 3/ \$31,000,000 contributed by the United States converted to pesos at the rate of 4.85.
- 4/ \$15,235,000 contributed by the United States converted to pesos at the rate of 6.88 to 8.64.
- 5/ The joint commission conducted salvage operations between October 3 and December 13, 1947, when salvage operations ceased. Salvage operations for that period included 5,025 cattle and 278 small animals. Prior to October 3, 1947, the Mexican Government conducted salvage operations.

## SLAUGHTER STATISTICS

	Cattle	Small Animals
	Accumulative	(Swine, sheep and goats)
	thru 11/26/49	Accumulative thru 11/26/49
Number .....	519,219	467,069 1/
Value (pesos) .....	125,983,601	13,011,623 1/
Average value (pesos) .....	242.64	27.86

- 1/ Includes 269,723 small animals slaughtered prior to October 3, 1947, for which indemnities were paid by the Mexican Government in amount of 7,515,813 pesos.

(over)

(j) Research Facilities

The Second Deficiency Appropriation Act of 1949 provided \$500,000 for preparing plans and specifications, and for acquiring an option on a site for laboratory facilities for research on foot-and-mouth disease, and placed an overall limitation of \$25,000,000 on this project.

Before the close of the 1950 fiscal year it is expected that preliminary sketches, drafted by the General Services Administration, will be ready for presentation to the Congress, together with estimates of cost for construction. Since laboratory research on foot-and-mouth disease poses special problems arising from the contagious nature of the disease and the need for thorough sanitation measures, the plans involve major elements of engineering for decontamination of air and sewage, isolation of infected animals, and incineration of carcasses and waste products. While preliminary sketches will adequately set forth the external and internal features of the proposed laboratory, and will be accompanied by site surveys, soil tests, and other requisites to ultimate construction, it now seems likely that obligations for this work will not exceed \$150,000. The remaining balance can be utilized for the preparation of final working drawings and specifications such as will be necessary, before contracts can be awarded, and thus reduce the amount of additional funds required to be appropriated for that purpose. Estimates for the completion of detailed working drawings, as well as the costs of site and construction work, will be submitted with the preliminary plans.



# BUREAU OF ANIMAL INDUSTRY

## Functional Summary of RMA Projects Carried Out Under Title II

Functional Classification	1949	1950 (estimated)	Adjustments for 1951			1951 (estimated)
			P.L. 429:	Contract:	Other	
MARKETING RESEARCH AND SERVICES						
III. Marketing services, costs and margins:						
b. Studies of pricing practices . . .	\$ 404	\$ 1,000	\$ - -	\$ - -	\$ - -	\$ 1,000
Total, Financial Project						
III .....	404	1,000	- -	- -	- -	1,000
IV. Improvement in preparation and handling of farm products:						
a. Development and improvement of grades and standards .....	14,954	15,300	+100	- -	- -	15,400
e. Improved storage and conditioning of farm products .....	11,676	10,400	+200	- -	- -	10,600
Total, Financial Project						
IV .....	26,630	25,700	+300	- -	- -	26,000
Total, Title II, RMA .....	27,034	26,700	+300	- -	- -	27,000



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AND  
RIEDEL

STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS,  
: WORKING FUND, AND TRUST FUNDS  
(Amounts shown include pay adjustment costs)

Item	Obligations, 1949	Estimated obligations, 1950	Estimated obligations, 1951
Research and Marketing Act of 1946, Department of Agriculture (Bureau of Animal Industry):			
(Title I, sec. 10(a)):			
Utilization research .....	\$219,170:	\$305,600:	\$299,500
(Title I, sec. 10(b)):			
Research other than utilization..	247,968:	475,500:	478,100
(Title II):			
Marketing research and service ..	27,034:	26,700:	27,000
Total, Research and Marketing Act .....	494,172:	807,800:	a/ 804,600
Special Research Fund, Department of Agriculture (Bureau of Animal Industry):			
For special research projects and four regional research labora- tories for the improvement of sheep and swine through appli- cation of breeding methods and for studies of diseases of live- stock and poultry .....	402,523:	403,500:	406,500
Working Fund, Agriculture, Agri- cultural Research Administration, Bureau of Animal Industry, Advance from Office of the Surgeon General, Department of Army:			
For a study of data in Western Europe pertaining to the nutri- tional status of the population during and immediately after the last war .....	6,576:	24,424:	- -
Expenses and Refunds, Inspection and Certification of Canned Wet Animal Foods (Bureau of Animal Industry) (Trust fund):			
For inspection and certification of canned wet animal foods upon application of an interested party, which service is financed by fees which are covered into			

(Continued on next page)



Item	Obligations, 1949	Estimated obligations, 1950	Estimated obligations, 1951
Expenses and Refunds, Inspection and Certification of Canned Wet Animal Foods (Bureau of Animal Industry): (Trust Fund): Continued			
the Treasury as a special trust fund and are appropriated and made available for the payment of expenses and refunds in con- nection with the work provided for under cooperative agreements.	94,281:	94,651:	95,000
Purchase of Ten Jeeps and One Sedan for Government of Mexico, Foot- and-Mouth Disease Program, Depart- ment of Agriculture (Trust fund): For the purchase of equipment to be used by Mexico in carrying out its responsibilities relating to the quarantine patrol and general enforcement work incident to the cooperative program for the con- trol and eradication of foot-and- mouth disease in Mexico. These funds were furnished by Mexico...	13,083:	- -:	- -
Miscellaneous Contributed Funds, Department of Agriculture, Bureau of Animal Industry: For operation and maintenance of Remount Station, Pomona, Cali- fornia in cooperation with the W. K. Kellogg Foundation .....	55,483:	- -:	- -
TOTAL, OBLIGATIONS UNDER ALLOTMENTS, WORKING AND TRUST FUNDS .....	1,066,118:	1,330,375:	1,306,100

a/ Varies from amounts reflected in the Budget schedules by \$15,000 due to adjustments found necessary after Budget was printed.

#### PASSENGER MOTOR VEHICLES

It is anticipated that 105 cars will be replaced, constituting 12 percent of the total number of cars now owned and operated under the above appropriations. More than 90 percent of the passenger motor vehicles operated by the Bureau are used in inspection work on farms in rural districts, and many of them have mileage of 18,000 and upward a year. The attained mileage of cars proposed for replacement in 1951 will exceed 60,000 miles. The exchange of these cars for new vehicles is believed to be essential for greater economy and efficiency of operation.

1. *Phragmites australis* (Cav.) Trin. ex Steud.

100



BUREAU OF DAIRY INDUSTRY

Purpose Statement

The Bureau of Dairy Industry was established July 1, 1924, pursuant to Act of May 29, 1924. Its activities comprise four broad areas of research, as described below, and enforcement of regulations governing the manufacture of process butter.

1. Breeding, feeding, and management of dairy cattle and the inter-relationship of conformation, internal anatomy, and mammary development to producing capacity.
2. Nutritional factors affecting normal growth and health and physiological processes affecting the general usefulness of dairy cattle, including determination of the dietary factors which affect the utilization of the carotene; the influence of breed, individuality, and stage of lactation on the vitamin A potency of milk and the carotene content of feeds; the value of proteins in milk production.
3. Analysis of production data on 950,000 cows in 1800 dairy herd improvement association herds and evaluation of the genetic make-up of individual animals and families of animals; analysis of data on feed and on milk and butterfat production, and determination of the relative economy of feed costs to milk and butterfat produced at various levels of production.
4. Determination of the chemical and physical properties of dairy products; the effect of variations in processing and handling; the physiology and taxonomy of the bacteria of importance in dairy products manufacture; and development of new and improved methods of manufacturing milk products and byproducts.

The Bureau of Dairy Industry conducts research in Washington, at six field stations, and at fourteen State Agricultural Experiment Stations. The staff employed on November 30, 1949, numbered 313 of whom 154 were stationed in the field.

	Estimated, 1950	Budget estimate, 1951
Appropriated Funds	\$1,116,000	\$1,371,000



Appropriation Act, 1950 .....	\$ 1,093,200
Anticipated pay adjustment supplemental .....	22,800
Base for 1951 .....	1,116,000
Budget Estimate, 1951 .....	1,371,000
Increase .....	<u>+255,000</u>

### SUMMARY OF INCREASES, 1951

To place the research program on a more effective operating basis, including repairs and reconditioning of physical facilities at field stations .....	+\$125,000
To meet increased workload in connection with the dairy herd improvement association program .....	+ 21,200
To construct urgently needed housing facilities for dairy employees at the Agricultural Research Center (nonrecurring) .....	+ 100,000
To place on a full-year basis in 1951, pay adjustments under P.L. 429 which were in effect for only a part of fiscal year 1950 .....	+ 8,800

### PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950 (estimated)	P. L. 429: adjust- ment	Increase Other	1951 (estimated)
1. Dairy cattle breeding : feeding, and management:	\$449,043	\$417,000	+ \$2,200	+\$85,000(1)	\$504,200
2. Nutrition and Physiol- ogy .....	173,535	177,800	+ 1,400	+ 40,000(1)	219,200
3. Dairy herd improvement: investigations .....	320,991	314,100	+ 4,000	+ 21,200(2)	339,300
4. Dairy products re- search .....	174,925	181,300	+ 1,000	- -	182,300
5. Administration and enforcement of the Pro- cess Butter Act .....	26,544	25,800	+ 200	- -	26,000
6. Construction of hous- ing facilities .....	- -	- -	- -	+100,000(3)	100,000
Total pay adjustment costs Public Law 429 .....	<u>[- 7]</u>	[22,800]	[+ 8,800]	+[ 2,000]	[ 33,600]
Unobligated balance ....	1,580	- -	- -	- -	- -
Total available .....	1,146,618	1,116,000	(4)8,800	246,200	1,371,000
Transferred to "Salaries and expenses, Office of Information, Dept. of Agriculture" .....	+ 481	- -	- -	- -	- -
Transfer in 1950 esti- mates from "Printing and binding, Dept. of Agriculture" .....	-27,099	- -	- -	- -	- -
Anticipated pay adjust- ment supplemental ....	- -	-22,800	- -	- -	- -
Total appropriation or estimate .....	1,120,000	1,093,200	- -	- -	- -

*Corrected  
07/11/53 A.M.*



INCREASES

The increase of \$255,000 in this item for 1951 is composed of the following:

- (1) Increase of \$125,000 under Projects 1 and 2 to place research program on an effective operating basis, including repairs and reconditioning of physical facilities at field stations.

Need for More Adequate Experimental Herd: Artificial breeding makes possible wide dissemination of the influence of dairy sires from the superior strains developed in the Bureau's experimental herds. The demand for these superior sires far exceeds the supply. To maintain the high standard on which artificial breeding was started, there is critical need for an adequate supply of good bulls capable of siring daughters which generally will be better producers than their dams. The Bureau, however, will be unable to supply the demand for these superior sires without increasing the size of its experimental herds, especially the herd at the Agricultural Research Center. Any expansion of the herd, which would be from natural increase, entails accompanying increased costs arising from feed, care, maintenance, etc.

Research Retarded: There are many problems in the field of nutrition and physiology which need to be investigated, particularly in relation to pasture and forage utilization, nutritional requirements of calves, etc., but which the Bureau is unable to approach because of the unavailability of funds for employing the required personnel and for maintaining sufficient numbers of experimental animals in the nutrition herd. Increased costs of professional personnel, barn labor, feeds and other supplies have made it necessary to maintain a smaller herd of cattle; consequently experiments have had to be conducted with too few cows, with a reduced personnel, and with equipment and apparatus that have outlived their usefulness. The laboratory buildings and barn used for the work of this project have in them equipment that is now either worn-out or obsolete.

Maintenance of Field Stations: During the past ten or more years, with increasing costs, it has been impossible to keep the physical facilities and the equipment of the Bureau's experimental stations in proper repair. Many of the barns, laboratories, and accessory buildings need repair; barn lots and roads are badly in need of reconditioning and resurfacing; fields are in need of reconditioning and drainage systems should be repaired, extended, and in some cases relocated; fences need reconditioning. Improvements are essential if the stations are to operate efficiently, and effectively serve the research projects.

Division Handicapped by Separate Locations: The operating efficiency of the Breeding Division would be materially increased if the 8 people now located in Washington were headquartered at the Agricultural Research Center where much of the Division's work is carried on. At present delays occur in transacting business and staff members are sometimes obliged to travel between Washington and the Center because of the separate locations.

Plan of Work: It is proposed to utilize \$84,200 of the increase at the Agricultural Research Center for the following purposes: Alter the physiological building to provide suitable office quarters for the personnel of the Division of Breeding, Feeding and Management; repair and recondition buildings, barns, and laboratories; surface farm lots; repair, extend, and relocate drainage systems; repair fences, recondition roads, and replace laboratory, farm, and automotive equipment. The remaining amount will be used for the purchase of supplies, principally feeds for the dairy herd and for strengthening the research program, as described above. In future years the increase will be used for other maintenance needs and for enlarging the research staff for more effective research.

(2) Increase of \$21,200 under the project "dairy herd improvement investigations" for studies on association practices in relation to efficiency of production.

Need for Increase: The total clerical work load for handling this project in the postwar period was carefully calculated in 1945. An increase of \$125,000 was granted for the fiscal year 1947, which provided for 92 employees. With this additional personnel the proved-sire work was brought up to date, but the herd analysis work, required to provide much needed data for selecting superior cow families could not be undertaken. Absorption of pay act salary increases and within-grade advancements in recent years has resulted in a forced reduction of the personnel available for the project to 77 in 1950.

Although dairy herd improvement association work has reached an all-time peak of activity in every section of the country, the Bureau cannot maintain its analytical work on a current basis with the present number of employees. The States need such data to guide the rapidly growing artificial breeding association program. Dairymen recognize the value of the program and are paying from their milk and cream checks more than \$2,000,000 a year, representing the full cost of operating their local dairy herd improvement associations.

Work Load Data: Nearly 2-1/2 million production records for approximately 1 million different cows have been reported and analyzed. Production records are now being received and analyzed at the rate of \$1,500 daily. Because of the continued growth of this program, a backlog of work is gradually building up. During the calendar year 1949, approximately 375,000 records were received. This represents an all-time high. At present there are between 50,000 and 60,000 individual cow records unprocessed. With the increased personnel recommended, it should be possible to get the work current in from 6 to 8 months and maintain more efficient operation. The following table shows the growth and extent of the dairy herd improvement association program from 1937 to the present time, and an estimate of the increase in the program for 1950.



<u>Calendar Year</u>	<u>Number of associations</u>	<u>Number of herds</u>	<u>Number of cows on test</u>
1934	793	13,694	325,837
1935	809	15,573	364,218
1936	876	17,344	404,412
1937	992	20,772	496,562
1938	1,106	23,701	558,993
1939	1,228	25,949	625,284
1940	1,300	27,948	676,141
1941	1,383	31,381	763,502
1942	1,421	32,957	816,117
1943	1,057	24,155	616,972
1944	954	20,825	561,587
1945	949	21,254	577,200
1946	1,124	23,331	627,878
1947	1,426	28,812	775,546
1948	1,668	33,274	886,129
1949	1,786	35,851	943,939
1950	1,850 (est.)	38,000 (est.)	1,000,000 (est.)

(3) Increase of \$100,000 for construction of urgently needed housing facilities for dairy employees at the Agricultural Research Center.

Need for Increase: The Bureau has experienced serious difficulty with the labor situation at the Agricultural Research Center, particularly in the matter of employing competent dairy labor, because of the lack of housing facilities in that area. Private capital has not responded to suggestions that suitable homes be erected adjacent to the Center, nor is the development of the area encouraging in this regard. Prospective employees have refused employment offers for lack of near-by living quarters. The tours of duty of dairy laborers are such that they must of necessity live in close proximity to the station. They are required to report for work in some cases as early as 4 a.m. and those engaged in milking test cows are required to report for work three times a day. The tours of duty of the latter are from 4 to 7:30 o'clock a.m., 12:30 to 3:30 p.m. and 7 to 8:30 p.m. The accuracy of the results of the Bureau's research in breeding and nutrition depends in no small measure on the efficiency with which the cows are fed, milked, and handled. If the Bureau were in a position to attract a better type of dairyman it could more readily attain and preserve the high standards essential to successful research investigations. A staff of about 30 persons usually are needed for dairy labor. Some of the present employees have satisfactory housing. The ten houses proposed would accommodate a nucleus of steady, family-men in close proximity to their work.

Plan of Work: On the basis of preliminary planning, it is proposed to provide 7 two-bedroom and 3 three-bedroom homes at a unit cost of about \$9,000, or a total of \$90,000. The cost of grading, sewer and water lines, and other facilities would approximate \$10,000.



Consideration is being given to pre-fabricated steel-type houses which would minimize future maintenance expense. Alternative plans would provide for construction under contract of frame or cinder-block houses, using working drawings prepared by the Bureau of Plant Industry, Soils, and Agricultural Engineering.

Employees would be required to pay reasonable rentals, consistent with the type of housing to be furnished.

(4) Increase of \$8,800 to place on a full year basis in 1951 pay adjustments under P.L. 429 which were in effect for only a part of the fiscal year 1950.

# BUREAU OF DAIRY INDUSTRY

## Alternate Project Statement

Project	1949	1950 : Estimated :	Increase (+) or Decrease (-) :	1951 : Estimated :	1951				Grand Total
					FMA				
					Section : 10(a)	Section : 10(b)	Total	Special : Research : Fund	
1. Dairy cattle breeding, feeding, and management :	449,043	417,000	+87,200	504,200	---	181,300	181,300	29,300	714,800
2. Nutrition and physi- ology .....	173,535	177,800	+41,400	219,200	94,200	86,400	180,600	16,500	416,300
3. Dairy herd improve- ment investigations :	320,991	314,100	+25,200	339,300	---	---	---	---	339,300
4. Dairy products research .....	174,925	181,300	+ 1,000	182,300	120,600	---	120,600	---	302,900
5. Administration and enforcement of the Process Butter Act ...	26,544	25,800	+ 200	26,000	---	---	---	---	26,000
6. Construction of housing facilities ...	---	---	+100,000	100,000	---	---	---	---	100,000
7. Pay adjustment costs	---	[22,800]	[10,800]	[33,600]	[4,800]	[2,700]	[7,500]	[700]	[41,800]
Unobligated balance ....	1,580	---	---	---	---	---	---	---	---
Total available .....	1,146,618	1,116,000	+255,000	1,371,000	214,800	267,700	482,500	45,800	1,899,300
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture" .....	+481	---	---	---	---	---	---	---	---
Transfer in 1950 estimates from "Printing and binding, Department of Agriculture"	-27,099	---	---	---	---	---	---	---	---
Anticipated pay adjust- ment supplemental .....	---	-22,800	---	---	---	---	---	---	---
Total appropriation or estimate .....	1,120,000	1,093,200	---	---	---	---	---	---	---

# RMA Projects

Finan- cial Project No.	RMA Project No.	Project Title	1949	1950 (estimated)	Adjustments, for 1951 P.L. 429	1951 (estimated)
		Section 10(a) Utilization research:				
2	7	Factors affecting the utilization of nutrients in forage .....	25,922	52,800	+400	53,200
4	15	Preservation of milks and creams by freezing and refrigeration and improved techniques for main- taining quality in storage .....	24,949	28,400	---	28,400
4	16	Utilization of milk, skim milk and whey proteins in manufacture of cheese .....	34,007	45,600	+300	45,900
4	17	Utilization of milk and milk products in beverage milks, in evaporated, condensed, and dried milks and in other food products .....	23,976	30,500	+600	31,100
2	103	Improvement in methods of cottonseed oil extrac- tion, and development of new and improved pro- ducts from cottonseed and their evaluation .....	1,467	5,100	+100	5,200
4	151	The utilization of milk solids in ice cream and milk sherbets .....	9,239	10,100	+100	10,200
2	307	Conversion of vegetable and animal byproducts, surpluses, and wastes into new feedstuffs and the establishment of their feeding values .....	290	---	---	---
2	348	Relationship between nutritive value of butter and its lipids .....	13,906	15,300	+100	15,400
2	502	Biochemical and bacteriological factors involved in silage preservation and utilization of grass- land forage .....	---	15,200	+200	15,400

Continued on next page



Finan- cial Project: Project: No. : No. :	Project Title	1949	1950 :(estimated):	Adjustment: for 1951: P.L. 429:(estimated)	1951
	Section 10(a) Utilization research: (continued)				
2	The role of B12 in the nutrition of the calf, and the B12 activity of milk and its products as affected by various factors in production and processing .....	---	10,000	---	10,000
	Total, Section 10(a) .....	133,756	213,000	+1,800	214,800
	Section 10(b) Research other than utilization:				
1	Development of strains of dairy cattle especially adapted to southern conditions .....	62,878	90,500	+300	90,800
1	Development of strains of dairy cattle to insure high production for the small dairymen in dairy sections of the U. S. ....	61,091	90,400	+100	90,500
2	Toxicological effects of insecticides, fungicides and herbicides on plants and animals .....	16,879	25,300	+300	25,600
2	The influence of mineral deficiencies in soils, including minor elements on crop yields, composition, and nutritive value and their economic relationships .....	---	15,200	+200	15,400
408	Investigations of the various factors that contribute to reproductive failure in dairy cattle .....	20,557	45,200	+200	45,400
	Total, Section 10(b) .....	161,405	266,600	+1,100	267,700
	Total, RMA .....	295,161	479,600	+2,900	482,500

# Special Research Projects

Finan- cial Project No.	SRF Project No.	Project Title	1949	1950 :(estimated):	Adjustments for 1951 P.L. 429	1951 (estimated)
1	SRF-2-73	Crossbreeding investigations with dairy cattle	28,189	29,100	+200	29,300
2	SRF-2-103	The chemical and physical properties of un-identified nutrients occurring in milk and certain other foods and feeds .....	4,690	---	---	---
2	SRF-2-117	Relation of hormones to mammary gland growth and lactation and the conditions which affect the secretion and action of the hormones ...	9,387	9,900	---	9,900
2	SRF-2-118	Functions of prolactin in lactation and re- production and the physiological conditions which influence its secretion and action ...	5,690	6,600	---	6,600
2	SRF-2-119	A study of the use and effect of hormone induced lactations in dairy goats .....	600	---	---	---
		Total, Special Research Fund .....	48,556	45,600	+200	45,800

CHANGE IN LANGUAGE

The estimates include a proposed change in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

Salaries and expenses: For necessary expenses, including \* \* \* not to exceed \$100,000 for construction of 10 or more housing units for employees, and \$25,000 for alterations to the physiological laboratory at the Agricultural Research Center, \$1,371,000.

This change in language is proposed in accordance with the increases requested in the estimates to provide necessary authority for the construction of ten or more housing units for dairy employees at a cost not to exceed \$100,000, and for altering the physiological laboratory building at the Agricultural Research Center, at a cost of \$25,000, to provide office facilities for part of the present staff now located in Washington.



## STATUS OF PROGRAM

Current Activities: The Bureau conducts specialized research pertaining to dairy cattle, milk, and milk products. It cooperates with State and other Federal agencies, and with individuals and organizations in the dairy industry, including processors of milk and milk products. Major phases of the research program include:

- (1) Investigations in dairy cattle breeding, feeding and management to improve the producing efficiency of the national dairy herd and thereby make the business of dairying a more profitable enterprise.
- (2) Investigations in dairy cattle nutrition and physiology to determine (a) the nutritional value of milk and its relation to the nutrition of the cow; (b) the nutritional requirements of dairy cattle; (c) the value of various feeds, feed constituents, and feeding regimes as sources of nutrients; and (d) the physiological processes affecting the general economic usefulness of dairy cattle, such as the processes involved in the utilization of feed, reproduction and lactation, and the relation of diet to these processes.
- (3) Investigations of the basic principles of sanitary milk production and handling to preserve the palatability and nutritive and sanitary qualities of milk; to improve the quality and reduce the cost of manufacture of dairy products; to develop the domestic manufacture of dairy products, and to establish these methods in industry.

The Bureau also demonstrates at regional dairy experiment stations the dairy practices applicable to such regions, and conducts a National Dairy Herd Improvement Program in cooperation with the State extension services to improve the producing efficiency of dairy cows by applying the results of research. The average milk and butterfat production of almost one million cows in dairy herd improvement association herds exceeds by 3,675 pounds of milk and 150 pounds of butterfat the national average of the 24 million dairy cows of the country. Among the projects now being conducted, the following are selected as typical:

1. Improving the milk producing ability of the nation's dairy cattle by extending the use of proved sires.
2. Analysis of data of external and internal measurements and production records to provide a dependable solution of the problem of the relation of certain physical characteristics to milk producing ability.
3. Comparative efficiency of feed production on permanent pastures when plots are fertilized and grazed, and when fertilized, renovated and grazed in that rotation.

4. Determination of the relative efficiency of conserving the nutrients and feeding value of roughages when harvested as wilted silage, and as barn-cured, field-cured, and dehydrated hays.
5. Experiments to conserve grain through a more extensive use of roughages in rearing dairy heifers to the time of calving.
6. The effect on milk production of feeding lower levels of protein during lactation.
7. The nutritional requirements of the calf and the relation of methods of feeding to the development and health of the calf.
8. To devise a remedy for the common defects in stored condensed milk, such as body and color.
9. The activity of various species of microorganisms and their effect upon flavor, structure, quality, and rate of ripening of Cheddar cheese.
10. The effect of different heat treatments of milk upon the keeping quality of its dried product.
11. Methods for detecting mastitis and the identification of various causative organisms.

Selected Examples of Recent Progress:

1. A standard for size and rate of growth for cows of the Jersey breed has been established from the lifetime weight records of 378 females in the Beltsville herd. Such standard will aid in interpreting the results of crossbreeding on size and growth.
2. Results obtained in the Beltsville herds for evaluating the potential producing ability of dairy heifers by palpation of the developing mammary gland at 4 to 5 months of age are now being confirmed in a limited way by similar work in dairymen's herds. Additional confirmatory data will support a recommendation for udder palpation as a guide to early culling of potentially nonprofitable heifers.
3. Cows fed a 10-11% protein grain mixture for 2, 3, or in one case, even 4 years have shown no ill effects as a result of this low protein diet as compared with cows fed a grain mixture containing 14% and 18% protein. Feeding less protein lowers the cost of supplemental feed for milk production.
4. Studies were made on the conservation of nutrients in alfalfa and its feeding value when made into (1) wilted silage; (2) hay, field-chopped, and barn-dried with supplemental heat; and (3) hay, dehydrated in a small portable dehydrator. Dehydration preserved slightly more dry matter, protein, and considerably



- more carotene than the other methods. The difference in efficiency of preservation was slight as between silage and hay. The forages produced were equal in quality and very nearly equal in feeding value when fed on the same dry matter basis. The labor and equipment requirements were higher for the dehydrated hay. The cost of power and heat with the barn-dried and dehydrated hays made these forages more expensive feeds than the silage.
5. Over a period of 4 years the renovation of permanent pastures has led to a marked increase in carrying capacity. Renovated bluegrass and orchard grass pastures yielded 28.8% and 29.2% more nutrients, respectively, than unrenovated bluegrass and orchard grass pastures. Chemical analyses of the herbage collected during two years showed a higher protein content for the renovated pastures. (Coop. BPISAE)
  6. Contrary to the often accepted premise that the vitamin A content of the plasma of the blood is an index of the nutritional status of an animal insofar as vitamin A is concerned, results indicate that the vitamin A content of blood plasma may be influenced by conditions which at present are not understood. Calves fed a ration to 90 days of age that was adequate in its vitamin A content, when placed on a vitamin-A- deficient ration showed an increase in plasma vitamin A. This also occurred with calves changed from whole milk to skim milk, which also reduced their vitamin A intake. When lard was homogenized into the skim milk there was a drop in plasma vitamin A. The relation of these observations to the utilization of vitamin A has yet to be determined.
  7. Dairy heifers can be successfully reared from 10 months of age until calving time on roughages as sole ration. The rations used consisted of (1) alfalfa, timothy, and corn silage; (2) alfalfa, timothy, and cornstalk silages; (3) alfalfa, timothy, and orchard grass-ladino hay; (4) alfalfa alone; and (5) alfalfa and corn silage. Calves maintained on any of these all-roughage rations were normal in weight at 24 months of age and they calved normally.
  8. 4,887 sires were proved in dairy herd improvement associations in 1948. Their daughters produced an average of 9,607 pounds of milk and 391 pounds of butterfat. 25% of all sires proved during 1948 had daughters whose average butterfat production exceeded 425 pounds.
  9. Evaporated milk should be stored at temperatures below 70° F. to prevent losses. It has been found that above a temperature of 70° F. deterioration of color, body, and flavor of evaporated milk progresses at an accelerated rate. Below 70° F. the rates of deterioration are relatively slow.



10. A number of different strains of bacteria are capable of causing mastitis of different degrees of severity. The relationship of various detecting tests, i.e., chloride content, leucocyte count, etc., to the type of organism present and to the severity of the disease caused by the various organisms has been determined, and makes possible the easy identification of the causative organisms and thereby indicates the proper method of treatment.
11. High-temperature short-time heat treatments in the manufacture of concentrated milks and dried milks are advantageous in controlling quality. To facilitate further studies an inexpensive high-temperature short-time heater has been developed which may have commercial possibilities for economical and extended pasteurization.
12. The phosphatase test developed for testing the adequacy of pasteurization of milk and dairy products has been modified so that it can be applied to goat's milk with reliable results. Hitherto no reliable test for goat's milk was known.
13. ✓ Studies have indicated one of the chief reasons for nonuniformity in Cheddar cheese made from raw milk. The growth of certain strains of organisms in some milks inhibited the normal lactic fermentation of the starters used and prevented normal curing. When pasteurized milk was used this variation in the bacterial activity of raw milks was obviated and a uniform product was obtained.
14. Receipts from Sales of Dairy Products and Animals  
(Deposited in Miscellaneous Receipts of the Treasury)

<u>Fiscal Year</u>	<u>Receipts</u>
1945	\$128,742
1946	141,451
1947	157,802
1948	149,082
1949	128,328

# BUREAU OF DAIRY INDUSTRY

## Functional Summary of RMA Projects Carried Out Under Title II

Functional Classification	1949	1950 (estimated)	Adjustments for 1951: P. L. 429	1951 (estimated)
MARKETING RESEARCH AND SERVICES				
III. Marketing services, costs and margins:				
c. Measurement of costs and margins .....	\$5,276	\$10,200	\$50	\$10,250
IV. Improvement in preparation and handling of farm products:				
a. Development and improvement of grades and standards .....	16,780	16,200	50	16,250
Total, Title II, RMA .....	22,056	26,400	100	26,500





STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS

(Amounts shown include pay adjustment costs)

Item	: Obligations : 1949	: Estimated : obligations : 1950	: Estimated : obligations, : 1951
<u>Research and Marketing Act of</u>	:	:	:
<u>1946, Department of Agriculture</u>	:	:	:
<u>(Bureau of Dairy Industry).</u>	:	:	:
(Title I, Sec. 10a)	:	:	:
Utilization research .....	: \$133,756	: \$213,000	: \$214,800
(Title I, Sec. 10b)	:	:	:
Research, other than	:	:	:
utilization research .....	: 161,405	: 266,600	: 267,700
(Title II)	:	:	:
Marketing research and	:	:	:
services .....	: 22,056	: 26,400	: 26,500
Total .....	: 317,217	: 506,000	: a/ 509,000
<u>Special Research Fund, Department of Agriculture, (Bureau of Dairy Industry):</u>	:	:	:
For special dairy cattle and	:	:	:
dairy products research ....	: 48,556	: 45,600	: 45,800
TOTAL, OBLIGATIONS UNDER ALLOTMENTS	: 365,773	: 551,600	: 554,800

a/ Varies from amounts reflected in Budget schedules by \$15,000 due to adjustment found necessary after Budget was printed.



#### PASSENGER MOTOR VEHICLES

Replacement. The 1951 estimates contemplate the replacement of one passenger motor vehicle at a net cost of \$1,000.

The Bureau's four cars are each at least 10 years old. It is proposed to replace one car each year beginning in 1951 in the interest of economy of operation and maintenance. Three cars are stationed at Beltsville, Maryland, in use there for Bureau activities at the Agricultural Research Center and for transportation to and from Washington. One of the cars is also used extensively to make inspection visits in Maryland, Virginia, and Pennsylvania where dairy bulls are on loan to farmers.

The fourth car is stationed at Lewisburg, Tennessee where a dairy breeding and demonstration station is maintained.





*Quoted*

BUREAU OF PLANT INDUSTRY, SOILS, AND AGRICULTURAL ENGINEERING

Purpose Statement

The Bureau of Plant Industry was established under provisions of the Agricultural Appropriation Act of 1902, approved March 2, 1901, and the Act of June 3, 1902 (5 U.S.C. 524). In February, 1943, the name was changed to the Bureau of Plant Industry, Soils, and Agricultural Engineering.

Research is organized in four major groups, as follows:

1. Field Crops: Research with field crops, which include cereals, cotton, forage, rubber, sugar, tobacco and other important food, feed, fiber, and oil crops, is concerned chiefly with reducing the hazards of production and improving the yield and quality of crops. The principal method is by breeding, selecting, and testing varieties for high yield and resistance to diseases, insects, heat, drought, cold, or other hazards. Methods of controlling weeds are studied.
2. Horticultural Crops: Research is conducted on the production and improvement of fruit, vegetable, nut, ornamental, and specialty crops, and on methods of reducing losses from diseases and deterioration involved in handling, processing, transporting, and storing these crops. Methods are developed for avoiding or controlling diseases of trees and forest products. Foreign plant explorations and introductions provide new crops and valuable breeding material for the development of improved crops. Investigations are also conducted on reducing crop damage caused by nematodes.
3. Soils: Soil investigations are directed toward the determination of systems of soil management and irrigation that will increase soil fertility and give most efficient crop production; the improvement of fertilizers and liming materials; and the classification and mapping of soils with particular respect to their crop production capacities, crop adaptations and management practices.
4. Agricultural Engineering: Agricultural engineering investigations are concerned with the improvement of farm machinery for planting, cultivating, fertilizing, spraying, dusting, and harvesting crops; the development of improved equipment and facilities for processing and storing farm products; the design of improved farm buildings and houses; and the development and application of electrical equipment to farm use.

The Bureau also is responsible for the operation, maintenance, and development of the National Arboretum, which was established by Congress in 1927 in the District of Columbia to provide a collection of living plants from this country and abroad valuable not only for breeding with native species to develop improved strains of trees, shrubs, and flowers for parks, boulevards, and other landscape uses, but also for study by students and scientists.

The research work consists primarily of field, laboratory, and greenhouse experiments conducted usually in cooperation with state agricultural experiment stations, industry and others. Because of the diverse crops and wide range of soil and climatic conditions, it is necessary to conduct the work at numerous field locations. Research results are made available to farmers and others through increase and distribution of improved varieties, and by dissemination of information through the Federal-State cooperative extensive service, publications, the agricultural press, and correspondence.

Work Locations and Personnel: The Headquarters of the Bureau are at Plant Industry Station, Beltsville, Maryland. In the field, the work is conducted at 195 locations in 45 states, at Summit, Canal Zone, and at Sao Paulo, Brazil. As of November 30, 1949, under all funds of the Bureau there were 2,198 full-time employees, including 116 in the Departmental Service, and 714 part-time employees. In addition there were 619 collaborators serving without compensation.

	Estimated, <u>1950</u>	Budget estimate, <u>1951</u>
Appropriated Funds	\$8,827,540	\$9,795,000



Summary of Appropriations, 1950 and Estimates, 1951  
(Amounts Shown Include Estimated Pay Adjustment Supplementals)

Item	: Total esti- : mated available, : 1950 a/	: Budget : estimates, : 1951	: Increase (+) : or : decrease (-)
Salaries and expenses:			
Field crops .....	\$2,846,800	\$2,971,000	\$+124,200
Fruit, vegetable, and specialty crops .....	2,406,600	2,644,000	+237,400
Forest diseases .....	409,040	458,300	+49,260
Soils, fertilizers, and irrigation .....	b/ 2,206,100	2,593,000	+386,900
Agricultural engineering ..	785,800	976,000	+190,200
National Arboretum .....	173,200	152,700	-20,500
Total, direct annual appropriation .....	8,827,540	9,795,000	+967,460

a/ Adjusted for comparability with the appropriation structure proposed in the 1951 Budget Estimates.

b/ In addition, a contract authorization of \$100,000 was provided in the 1950 Agricultural Appropriation Act to construct or acquire buildings, facilities, and equipment for the new Southwest Irrigation Field Station, Brawley, California.

(a) Field Crops

Appropriation Act, 1950 .....	\$2,694,000
Anticipated pay adjustment supplemental .....	49,800
Activities transferred in 1951 Estimates from "Salaries and expenses, plant industry, soils, and agricultural engin- eering, Agricultural Research Administration," fruit, veg- etable, and specialty crops .....	103,000
Base for 1951 .....	2,846,800
Budget Estimate, 1951 .....	2,971,000
Increase .....	<u>+124,200</u>

SUMMARY OF INCREASES AND DECREASES, 1951

To place the research program on a more effective operating basis including repairs and reconditioning of physical facilities at field stations .....	+185,000
Elimination of non-recurring item provided in 1950 Agricul- tural Appropriation Act for construction of an office-lab- oratory building at the Southern Great Plains Field Station, Woodward, Oklahoma .....	-85,000
Increase necessary to place on a full-year basis in 1951, pay adjustments under Public Law 429 which were in effect for only a part of fiscal year 1950 .....	+24,200

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PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs. Parenthetical amounts opposite the lettered subprojects represent the detail of the numbered main projects which immediately precede.)

Project	1949	1950 (estimated)	Increase or decrease		1951 (estimated)
			P. L. 429 adjustment:	Other	
1. Cereal produc-					
tion, breeding,					
disease, and					
quality investi-					
gations .....	\$860,532	\$827,360	+\$7,250	+\$48,000(1)	\$882,610
(a) Barley .....	(83,007)	(88,170)	(+760)	(+3,500)	(92,430)
(b) Corn .....	(196,742)	(190,450)	(+1,320)	(+11,100)	(202,870)
(c) Seed flax ...	(28,994)	(26,150)	(+260)	(+400)	(26,810)
(d) Grain sorghum	(47,124)	(45,760)	(+340)	(+2,000)	(48,100)
(e) Oats .....	(56,831)	(56,000)	(+370)	(+3,100)	(59,470)
(f) Rice .....	(59,606)	(53,920)	(+530)	(+9,300)	(63,750)
(g) Wheat and rye	(289,922)	(275,600)	(+2,600)	(+17,300)	(295,500)
(h) Weeds .....	(98,306)	(91,310)	(+1,070)	(+1,300)	(93,680)
2. Cotton produc-					
tion, breeding,					
disease, and					
quality investi-					
gations .....	512,978	493,770	+4,660	+39,000(1)	537,430
3. Fiber plants					
other than cotton	57,838	53,750	+300	--	54,050
4. Forage crop pro-					
duction, breeding,					
disease and					
quality investi-					
gations .....	623,812	569,450	+5,080	+42,000(1)	616,530
(a) Alfalfa .....	(123,410)	(118,940)	(+920)	(+7,000)	(126,860)
(b) Clover .....	(63,401)	(61,860)	(+630)	(+3,700)	(66,190)
(c) Soybeans ...	(84,936)	(82,630)	(+590)	(+4,700)	(87,920)
(d) Lespedeza,					
cowpea and					
miscellaneous:					
legumes .....	(50,840)	(48,510)	(+520)	(+3,000)	(52,030)
(e) Hay and					
pasture grass:	(292,234)	(248,810)	(+2,320)	(+23,500)	(274,630)
(f) Turf .....	(8,991)	(8,700)	(+100)	(+100)	(8,900)
5. Rubber produc-					
tion, breeding,					
and disease in-					
vestigations ...	40,635	39,300	+310	--	39,610
6. Sugar plant pro-					
duction, breeding,					
disease, and					
quality investi-					
gations .....	504,401	481,840	+4,340	+36,000(1)	522,180
(a) Sugar beets	(281,994)	(273,320)	(+1,960)	(+13,600)	(288,880)
(b) Sugarcane ...	(171,091)	(157,190)	(+2,090)	(+21,500)	(180,780)
(c) Sugar sorghum	(51,316)	(51,330)	(+290)	(+900)	(52,520)

Project	1949	1950 (estimated)	Increase or decrease:		1951 (estimated)
			P. L. 429 adjustment	Other	
7. Tobacco production, breeding, disease and quality investi- gations .....	201,761	193,330	+1,520	+12,000(1)	206,850
8. Drug, oil, raticide, insecticide, tannin, flavoring and special product plant in- vestigations .....	77,993	73,980	+670	+5,000(1)	79,650
9. Hop production, breeding, disease and quality investi- gations .....	31,907	29,020	+70	+3,000(1)	32,090
Construction of an office and labora- tory building at the Southern Great Plains Field Station, Woodward, Oklahoma ..	--	85,000	--	-85,000(2)	--
11. Replacement of worn-out equipment ..	46,607	--	--	--	--
Total pay adjustment costs, P. L. 429 .....	--	a/[51,700]	[+24,200]	[+5,100]	[81,000]
Unobligated balance .....	14,118	--	--	--	--
Total available or estimate .....	2,972,582	2,846,800	+24,200(3)	+100,000	2,971,000
Transfer in 1950 esti- mates from "Printing and binding, Depart- ment of Agriculture" ..	-55,494	--			
Transfer in 1951 esti- mates from "Salaries and expenses, plant industry, soils, and agricultural engineer- ing, Agricultural Re- search Administration," fruit, vegetable, and specialty crops .....	-108,466	-103,000			
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture" .....	+278	--			
Anticipated pay adjust- ment supplemental .....	--	-49,800			
Total appropriation or estimate .....	2,808,900	2,694,000			

a/ Includes \$1,900 applicable to activities transferred in 1951 estimates from "Salaries and expenses, plant industry, soils, and agricultural engineering, Agricultural Research Administration," fruit, vegetable, and specialty crops.



# INCREASES AND DECREASES

The increase of \$124,200 in this item for 1951 is composed of the following:

(1) An increase of \$185,000 under projects 1, 2, 4, 6, 7, 8 and 9 of the subappropriation "Field Crops" to place the research program on a more effective operating basis, including repairs and reconditioning of physical facilities at field stations.

Total increases of \$485,000 for this purpose are included in the estimates of this Bureau for 1951. For convenience, a consolidated justification is shown at this point with distribution of increase by projects shown under individual subappropriations. The total increase by subappropriations is as follows:

Field crops .....	\$185,000
Fruit, vegetable, and specialty crops ....	190,000
Forest diseases .....	20,000
Soils, fertilizers, and irrigation .....	90,000
	<u>485,000</u>

Need for Increase: Costs of conducting research in the Bureau are estimated to have increased at least 58% during the war and post-war period. The elements causing this increase include (a) mandatory pay increases and within-grade salary advancements of classified employees, (b) increased salaries of cooperating agents and higher wages of farm and casual laborers whose rates of compensation are not fixed in accordance with the Classification Act of 1923, as amended, and (c) increased costs of supplies, materials, equipment, rents, utilities, travel and other operating items.

Increases in appropriated funds have been inadequate to meet the higher costs of conducting research in four of the subappropriations of the Bureau. Moreover, several of the increases provided were specifically for new projects and were not available for supporting existing Bureau research programs. Comparing 1950 with 1940, the funds available for research under these four subappropriations had increased about \$1,661,750, or 30.6%, as shown by the following tabulation:

<u>Appropriation</u>	<u>Appropri- ation 1940</u>	<u>Appropri- ation 1950</u>	<u>Less Adjust- ments</u>	<u>Net Program</u>	<u>Increase</u>	
					<u>Amount</u>	<u>Percent</u>
Field crops .....	\$2,082,650	\$2,694,000	\$85,000 a/	\$2,609,000	\$526,350	25.3
Fruit, vegetable, and specialty crops ...	1,957,960	2,464,000	--	2,464,000	506,040	25.9
Forest diseases ....	281,960	401,740	--	401,740	119,780	42.5
Soils, fertilizers, and irrigation ....	1,106,760	1,966,000	349,660 b/	1,616,340	509,580	46.1
	<u>5,429,330</u>	<u>7,525,740</u>	<u>434,660</u>	<u>7,091,080</u>	<u>1,661,750</u>	<u>30.6</u>

- a/ Non-recurring increase in 1950 for construction of building at Woodward, Oklahoma.
- b/ Increases for major items of new work since 1940, consisting of \$133,660 for irrigation studies in the lower Colorado and Columbia River Basins (fiscal year 1946) and \$216,000 for soil surveys and soil management investigations primarily in the Missouri River Basin (fiscal year 1950):

The total increases in appropriations of \$1,661,750, or 30.6%, are only approximately one-half the estimated increase in costs of \$3,122,000. The difference by which increased funds have failed to compensate for increased costs amounts to approximately \$1,460,000, which is approximately three times the increase being requested for 1951. The proposed budget increases of \$485,000, therefore, has been distributed so as to provide for the more effective operation of the research program at certain field stations, but not all of them.

The effects on the research program of higher costs without commensurate increases in funds has been manifested by (1) serious curtailment of the research program and (2) inadequate repairs and maintenance of physical facilities.

(1) Curtailment of the research program has been evidenced in numerous ways.

- (a) There has been a reduction in the quantity of plant breeding material that can be evaluated and tested, thereby slowing up the development of improved disease-resistant varieties and retarding the beneficial results which can be expected.
- (b) Laboratory and greenhouse work essential to breeding, disease and quality investigations have been curtailed.
- (c) It has not been possible to investigate and test as effectively new fungicides, pesticides, and plant growth regulators.
- (d) Soil management, and fertilizer investigations have been curtailed due to reduced personnel.
- (e) The analysis and interpretation of experimental data and the preparation and publication of experimental findings has been delayed.

Since agricultural research is closely related to individual effort, the reduction in man-power is a measure of the curtailment of the program. In 1940, these appropriations provided for around 2,070 man-years of employment, whereas in 1950, with comparability adjustments for transfers in the estimates, they provide for only 1,580 man-years, a reduction of 490, or 24 per cent. While the primary reduction has been in labor and the sub-professional assistants, there has also been a reduction in the number of professional employees. Accompanying the reduction in man-power has been a reduction in the amount of research operations and the quantity of supplies, materials and other operating items used in the research work. The research programs of co-operators have also been curtailed since a large portion of the Bureau's work is conducted in cooperation with state experiment stations and other agencies, who are dependent for the conduct of their programs on federal participation and guidance.



Typical examples of the curtailment in research work that has taken place are the cotton, pecan, and dry-land investigation programs.

Cotton research. The cotton production, breeding, disease, and quality investigations are conducted at 25 field locations and at Beltsville, Maryland. In 1950, funds were greater than in 1940, but employment has decreased as shown by the following comparative data for the entire project and for two of the field stations:

	<u>1940</u>	<u>1950</u>	<u>Net Change</u>	
			<u>Amount</u>	<u>Percent</u>
<u>Total Project</u>				
Funds available ....	\$423,000	\$483,860	+\$60,860	+14
Average annual employment .....	185	115	-70	-38
<u>Sacaton, Arizona</u>				
Funds available ....	23,820	25,325	+1,505	+6
Average annual employment .....	9.4	6	3.4	+36
<u>Baton Rouge, Louisiana</u>				
Funds available ....	14,600	15,600	+1,000	+7
Average annual employment .....	6	3.2	2.8	-46

The decrease in professional and sub-professional employees has been 35%, in farm laborers and temporary employees it has been higher, amounting to 65%. This reduction in personnel has inevitably prevented carrying out as effective a research program, although the need for the research work is even greater. The ability of cotton to compete with foreign supplies and with domestic substitute fibers will be governed largely by the success of research in reducing costs of production and in developing varieties which will produce fiber quality specifically adapted for various end uses.

Pecan research. The pecan investigations are conducted at 5 field locations and at Beltsville, Maryland. Since 1940, the higher salaries; the approximate doubling of farm wage rates; higher costs of fertilizers, spray materials, equipment and supplies; and the greater cost of taking care of the larger sized trees in the orchards, have greatly reduced the effectiveness of the research program. A comparison of 1940 and 1950 data follows:

	<u>1940</u>	<u>1950</u>	<u>Net Change</u>	
			<u>Amount</u>	<u>Percent</u>
Funds available ...	\$93,000	\$105,890	+\$12,890	+14
Average annual employment .....	40	29	11	-27

The reduction in employment was almost entirely in the professional workers. These pecan stations are rapidly approaching the point where all of our resources will be required for mere maintenance and there will be nothing for research.



Dry-land investigations. Under this program, the Bureau operates 10 federally-owned field stations and conducts cooperative work with state experiment stations at 16 other locations. Although funds are somewhat larger than in 1940, higher operating costs have caused a curtailment of personnel as reflected by the following comparisons:

	1940	1950	Net Change	
			Amount	Percent
<u>Total Project</u>				
Funds available ...	\$216,210	\$270,010	+\$53,800	+25
Average annual employment .....	81.4	62.8	-18.6	-23
<u>10 Federal Stations</u>				
Professional and sub-professional ....	17	12	-5	-29
Labor .....	40	32	-8	-20
<u>State Stations and Beltsville</u>				
Average annual employment ....	24.1	17.4	-6.7	-28

With the reduced personnel, the research program cannot be conducted as effectively as formerly, yet the demands for the research work are greater than before.

- (2) Repairs and reconditioning of physical facilities necessary for the preservation of government property and for efficient conduct of the work have been deferred longer than is prudent. Higher operating costs without compensating increases in funds have permitted only part of the repairs which are required. Four years ago, some repairs and reconditioning were accomplished with non-recurring funds provided specifically for the purpose, but such funds met only a portion of the needs which had accumulated up to that time. Additional repairs have since become necessary and still more can be expected regularly as part of the normal maintenance of physical facilities costing more than \$5,000,000. An increase in operating funds is required to do the job.

The Bureau's established research program needs to be placed on a more effective operating basis. The program is essential to reducing costs of crop production, protecting crops from diseases, and other hazards, improving quality, and increasing the productivity of our soils on a permanent basis to the end that ample supplies of food, feed, and fiber crops for an increasing population will be assured. The proposed increase would better enable the Bureau to meet its responsibility for effective research in this field. It would also enable cooperating agencies to more effectively support their share of the research work.

Plan of Work: Allocation of funds under the proposed increase would be as follows:

1. In 1951, the most urgent repairs and reconditioning of physical facilities at Federal stations would be undertaken.

2. The remaining funds in 1951 would be used for employment of additional staff and for the provision of sufficient funds for the effective operation of the research program at selected locations.
3. In 1952, funds not required for further repairs and reconditioning would be used to bring an additional number of locations up to an efficient operating level.

For 1951, the allocation of funds would be approximately as follows:

<u>Subappropriation</u>	<u>Research Activities</u>	<u>Repairs and Reconditioning</u>	<u>Total</u>
Field crops .....	\$121,000	\$64,000	\$185,000
Fruit, vegetable, and specialty crops .....	95,000	95,000	190,000
Forest diseases .....	16,000	4,000	20,000
Soils, fertilizers, and irrigation .....	53,000	37,000	90,000
	<u>\$285,000</u>	<u>\$200,000</u>	<u>\$485,000</u>

The allocation of \$200,000 for repairs and reconditioning is less than 4% of cost of the physical facilities which exceeds \$5,000,000.

The portion of the increases to be used for research activities would be allocated in 1951 to approximately 48 of the 170 field locations at which work under these subappropriations is conducted. The amount allocated per location varies considerably. In some instances, particularly with the cereals and forage investigations, the work is conducted at state experiment stations which assume the maintenance costs. In such situations, a relatively small additional allocation meets the need for additional sub-professional assistance, labor, and supplies to permit the operation of more experimental plots and more adequate testing of breeding materials. In other cases, such as the Federal stations at Sacaton, Arizona; Mandan, North Dakota; and Cheyenne, Wyoming, there is Federal responsibility for the maintenance of buildings, roads, and utilities as well as extensive farm operations which go on irrespective of the research work, and a relatively large additional allocation must be made to provide both for this maintenance and for the substantial research programs which these stations were established to conduct. The distribution of the allocations for research operations by subappropriations and locations is estimated as shown by Schedule A.

SCHEDULE A  
ESTIMATED ALLOCATION OF INCREASES FOR PLACING  
THE RESEARCH PROGRAM ON AN EFFECTIVE OPERATING BASIS

Location	Field Crops	Fruit, Veg. & Spec. Crops	Forest Diseases	Soils, Fert. & Irrigation	Total
Alabama, Spring Hill		\$3,000			\$3,000
Arizona, Sacaton	\$15,500				15,500
California, Biggs	5,000				5,000
Fresno		8,000			8,000
Indio		5,000			5,000
La Jolla		5,000			5,000
Riverside	9,000				9,000
Colorado, Akron				\$3,000	3,000
Florida, Orlando		5,000			5,000
Georgia, Fort Valley		3,500			3,500
Tifton	5,000	3,200			8,200
Idaho, Aberdeen	3,000	3,000			6,000
Illinois, Urbana	4,050				4,050
Indiana, Lafayette	3,300				3,300
Kansas, Hays				8,000	8,000
Manhattan	1,500				1,500
Kentucky, Lexington	1,200				1,200
Louisiana, Baton Rouge		9,500			9,500
Crowley	3,500				3,500
Houma	9,000				9,000
Shreveport		8,000			8,000
Maryland, Beltsville	5,000				5,000
Glenn Dale		10,000			10,000
Upper Marlboro	4,000				4,000
Mississippi, Saucier			\$6,000		6,000
State College	4,050				4,050
Stoneville	6,000				6,000
Missouri, Columbia	1,300				1,300



SCHEDULE A -- Continued

Location	Field Crops	Fruit, Veg. & Spec. Crops	Forest Diseases	Soils, Fert. & Irrigation	Total
Montana, Huntley				6,000	6,000
Nebraska, Lincoln	2,800				2,800
Mitchell				6,000	6,000
New Mexico, Albuquerque	1,300		10,000		10,000
North Dakota, Fargo	8,200	3,000			11,300
Mandan	4,000			9,000	20,200
Ohio, Wooster	3,000	10,000			4,000
Oregon, Corvallis	6,000			10,000	13,000
Pendleton	4,000				10,000
South Carolina, Clemson					6,000
Tennessee, Greeneville					4,000
Texas, Big Spring				6,000	6,000
Brownwood		3,000			3,000
Chillicothe	1,300				1,300
College Station	3,000				3,000
Utah, Logan	3,000	4,000			7,000
Washington, Pullman	4,000				4,000
Puyallup		800			800
Wyoming, Cheyenne		11,000			11,000
Sheridan				5,000	5,000
Total	121,000	95,000	16,000	53,000	285,000

The portion of the increases which would be used for repairs and reconditioning of physical facilities would be allocated in 1951 to approximately 20 of the 170 locations at which work under these subappropriations is conducted. The major portion, \$110,000, would be required at field locations and would be used for painting, roofing, and miscellaneous repairs to laboratories, barns, storage sheds, cotton gins, greenhouses and farm dwellings; for repairs and replacements of roads, bridges, fences, gates, corrals, greenhouse benches, drainage systems, water lines and other utilities; for the installation of protective facilities, such as a dike or pump at Canal Point, Florida, to protect the sugarcane station from flood hazards; and for other miscellaneous items of a related nature. At the station at Mandan, North Dakota, a garage, estimated to cost \$4,000, is required to house automotive equipment.

Approximately \$90,000 of the increase would be required for repairs and reconditioning of the physical facilities at the Plant Industry Station, Beltsville, Maryland, which have an estimated cost in excess of \$4,000,000. Because of increased costs and the necessity for maintaining the work at field locations, repairs and reconditioning at the Plant Industry Station generally have been deferred. A special appropriation was received in 1948 for the replacement of a portion of the heating lines and an addition to the sewage disposal system, and in 1949 for painting and repairing certain buildings and greenhouses. Continuous painting, repair, and reconditioning, however, is necessary to the preservation of government property and the effective conduct of the research work. It is estimated that in 1951 the funds would be required for:

Roof and other building and greenhouse repairs and painting .....	\$30,000
Road surfacing and repairs .....	15,000
Replacement of greenhouse steam lines, coils, and water lines .....	30,000
Replacement of greenhouse benches and other miscellaneous items .....	15,000
	<u>\$90,000</u>

The distribution of the allocations for repairs and reconditioning of physical facilities by subappropriations and locations is estimated as shown by Schedule B.

The distribution of the increase by financial projects in the Field Crops subappropriation is indicated in its lead-off Project Statement.

SCHEDULE B

ESTIMATED ALLOCATION OF INCREASES TO BE USED IN 1951 FOR REPAIRS  
AND RECONDITIONING OF PHYSICAL FACILITIES

Location	Field Crops	Fruit, Veg. & Spec. Crops	Forest Diseases	Soils, Fert. & Irrigation	Total
Arizona, Sacaton .....	\$3,000				\$3,000
California, Indio .....		\$2,000			2,000
La Jolla .....		12,000			12,000
Pomona .....		1,000			1,000
Riverside .....				\$1,600	1,600
Shafter .....	4,000				4,000
Florida, Canal Point .....	8,000				8,000
Coconut Grove .....		8,500			8,500
Georgia, Fort Valley .....		4,000			4,000
Louisiana, Houma .....	2,000				2,000
Shreveport .....		5,000			5,000
Maine, Presque Isle .....		5,000			5,000
Maryland, Beltsville .....	34,000	35,000	\$4,000	17,000	90,000
Glenn Dale .....		6,500			6,500
Mississippi, Meridian .....		5,500			5,500
Stoneville .....	1,000				1,000
North Dakota, Mandan .....				18,400	18,400
Oklahoma, Woodward .....	10,000				10,000
Texas, Greenville .....	2,000				2,000
Wyoming, Cheyenne .....		10,500			10,500
Total .....	64,000	95,000	4,000	37,000	200,000



(2) Decrease of \$85,000 under project 10 due to elimination of non-recurring item provided in 1950 Agricultural Appropriation Act for construction of an office-laboratory building at the Southern Great Plains Field Station, Woodward, Oklahoma.

Plans and specifications for the building have been prepared and bids for the construction were opened on December 29, 1949.

As of January 5, 1950 the award of the construction contract was still pending.

(3) Increase of \$24,200 to place on a full year basis in 1951 pay adjustments under Public Law 429 which were in effect for only a part of the fiscal year 1950.

# FIELD CROPS

## Alternate Project Statement

Project	1949	1950	: Increase (f) or : Estimated: Decrease (-) :	1951	1951			Special : Grand : Research: Total	
					RMA				
					Section: 10(a)	Section: 10(b)	Total		
1. Cereal production, breeding, disease, and quality investigations .....	860,532	827,360	\$55,250	882,610	119,800	140,600	260,400	2,400	1,145,410
2. Cotton production, breeding, disease, and quality investigations .....	512,978	493,770	\$43,660	537,430	--	61,500	61,500	--	598,930
3. Fiber plants other than cotton .....	57,838	53,750	\$300	54,050	--	--	--	--	54,050
4. Forage crop production, breeding, disease, and quality investigations .....	623,812	569,450	\$47,080	616,530	--	25,700	25,700	182,700	824,930
5. Rubber production, breeding, and disease investigations .....	40,635	39,300	\$310	39,610	--	--	--	--	39,610
6. Sugar-plant production, breeding, disease, and quality investigations .....	504,401	481,840	\$40,340	522,180	--	52,200	52,200	--	574,380
7. Tobacco production, breeding, disease, and quality investigations .....	201,761	193,330	\$13,520	206,850	25,600	--	25,600	27,300	259,750
8. Drug, oil, raticide, insecticide, tannin, flavoring, and special product plant investigations .....	77,993	73,980	\$5,670	79,650	29,500	--	29,500	--	109,150
9. Hop production, breeding, disease, and quality investigations .....	31,907	33,020	\$3,070	32,090	--	--	--	--	32,090

Project	1949	1950 Estimated	Increase (+) or Decrease (-)	1951 Estimated	1951		
					Section: 10(a)	Section: 10(b)	RMA Total : Research : Special : Fund : Total
10. Construction of an office and laboratory building at the Southern Great Plains Field Station, Woodward, Oklahoma	--	85,000	-85,000	--	--	--	--
11. Replacement of worn-out equipment	46,607	--	--	--	--	--	--
12. Pay adjustment costs	--	<u>51,700</u>	<u>729,300</u>	<u>81,000</u>	<u>3,900</u>	<u>7,000</u>	<u>4,700</u>
Unobligated balance	14,118	--	--	--	--	--	--
Total available	2,972,582	2,846,800	+124,200	2,971,000	174,900	280,000	454,900
Transfer in 1950 estimates from:							
"Printing and binding, Department of Agriculture"	-55,494	--					
Transfer in 1951 estimates from:							
"Salaries and expenses, plant industry, soils, and agricultural engineering, Agricultural Research Administration," fruit, vegetable, and specialty crops	-108,466	-103,000					
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture"	+278	--					
Anticipated pay adjustment supplemental	--	-49,800					
Total appropriation or estimate	2,808,900	2,694,000					



RMA Projects

Finan- cial Proj. No.	RMA Proj. No.	Project Title	1949	1950 :(estimated):	Adjustments for 1951	
					P.L. 429	1951 :(estimated)
		Section 10(a) Utilization research:				
8	22	Use of agricultural products as insecti- cides and accessory materials .....	9,699	15,200	\$100	15,300
1	50	Laboratory and pilot plant facilities to develop improved techniques for malting barley and evaluating barley quality for malting .....	63,028	57,800	\$600	58,400
7	53	Develop information on the relation of chemical and physical properties of tobacco to specific use values, and devise rapid methods for their determination .....	22,627	25,400	\$200	25,600
8	129	Investigation of tanning and development of new tanning materials with emphasis on increasing production of tannin crops and improving varieties .....	14,690	14,100	+100	14,200
1	313	Improve the technology of milling and baking wheat and evaluate varieties before releasing to farmers .....	59,333	50,700	\$500	51,200
1	518	Appraisal of technological advances in agriculture .....	--	10,100	\$100	10,200
		Total, Section 10(a) .....	169,377	173,300	\$1,600	174,900

Finan- cial Proj. No.	RMA Proj. No.	Project Title	1949	Adjustments for 1951		1951 (estimated)
				1950 (estimated)	P.L. 429	
		Section 10(b) Research other than utilization:				
2	43	Basic research on cotton insects relating to fundamental factors affecting control with special emphasis on physiological studies of the responses of cotton varieties under different environmental conditions to various insecticide applications	4,977	10,200	7100	10,300
6	49	Develop practices to maintain sugar content and quality of harvested sugar beets: and sugarcane: investigations to reduce sugar losses and deterioration of quality of sugarcane stored at the mills, particularly machine-harvested sugarcane, and to reduce preprocessing losses in sugar beets during storage after harvesting and before processing	20,566	21,300	7200	21,500
2	56:1	Develop efficient equipment for mechanizing cotton production, especially on small farms, including defoliation equipment and methods	17,043	25,400	7200	25,600
1	57:1	Establish a cooperative national research program to develop practical methods and equipment for weed control	63,334	91,400	7900	92,300
2	228	Regional marketing of one-variety community cotton	706	--	--	--

1/ See also Agricultural Engineering.

Finan- cial Proj. No.	RMA Proj. No.	Project Title	Adjustments for 1951		1951 (estimated)
			1949	1950 (estimated)	
		Section 10(b) Research other than utiliza- tion: (Cont.)			
1	314	Develop improved sawfly resistant varieties of wheat, better cultural practices, and insecticidal measures, for control of the wheat stem sawfly .....	9,502	10,200	10,300
6	525	Develop, through breeding and agronomic testing, improved varieties of sugarcane and sugar beets suited for fully mechanized production .....	--	30,500	30,700
2	526	Evaluate methods and equipment and estab- lish facilities for the determination of fiber and spinning properties of cotton early in the breeding program to expedite the development of improved varieties .....	--	25,400	25,600
4	527	Develop improved cultural and management practices for the production of seeds of forage grasses and legumes in the North Central and Southern regions .....	--	25,400	25,700
1	528	Develop disease and insect resistant, and varieties of barley, oats, wheat and rye, and improved methods for their production, to provide grain, grazing and winter soil cover in the South .....	--	25,400	25,700

P.L. 429



Finan-: RMA	Project Title	1949	1950 :(estimated)	Adjustments for 1951 P.L.429	1951 :(estimated)
cial :Proj.					
Proj. : No.					
No.					
1	Section 10(b) Research other than utiliza- tion: (Cont.)				
	529: Develop seed flax varieties resistant to				
	wilt and anthracnose and other diseases				
	limiting flax seed production under				
	irrigation in the Western States	--	12,200:	100	12,300
	Total, Section 10(b)	116,128:	277,400:	2,600	280,000
	Total, RMA	285,505:	450,700:	4,200	454,900

Special Research Projects

Finan- cial Proj. No.	Proj. No.	Project Title	1949	1950 (estimated)	Adjustments for 1951	
					1951 (estimated)	P.I. 429
		Laboratories:				
4	3-2	Research into laws and principles under- lying pasture improvement in the North- east region of the United States	73,325	75,500	\$600	76,100
4	3-3	Research on development and production of improved strains and varieties of soybeans for industrial uses through agronomic in- vestigations supported by plant- chemical analysis	110,300	105,900	\$700	106,600
		Total, Laboratories	183,625	181,400	\$1,300	182,700
		Projects:				
7	2-107	Research into the effects of soil hydrogen- ion concentration on mineral nutrition of flue-cured tobacco as well as high levels of nutrition primarily in relation to the quality of the cured leaf	8,296	10,200	\$100	10,300
7	2-108	Fundamental studies on root rot diseases of flue-cured tobacco	10,591	16,900	\$100	17,000
1	2-124	Investigations of cytogenetic effects of radiation treatments on corn	1,295	2,400	--	2,400
		Total, Projects	20,182	29,500	\$200	29,700
		Total, Special Research Fund	203,807	210,900	\$1,500	212,400

CHANGE IN LANGUAGE

The estimates propose the following change in language of this item (deleted matter enclosed in brackets):

For investigations on the production, improvement, and diseases of alfalfa, barley, ..... and other field crops, [\$2,694,000, of which not to exceed \$85,000 shall be available for the construction of an office and laboratory building at the Southern Great Plains Field Station, Woodward, Oklahoma] \$2,974,000.

This change deletes the non-recurring provision contained in the 1950 Agricultural Appropriation Act for the construction of an office and laboratory building at the Southern Great Plains Field Station, Woodward, Oklahoma.





STATUS OF PROGRAM

Current Activities: This appropriation provides for research on the production, improvement, and control of diseases of the principal farm crops, including corn, cotton, hay, wheat, oats, tobacco, soybeans, sugarcane and sugar beets, and other field crops. These crops provide the major sources of our food; the feed and pasture for our livestock; fibers, oils, and other raw materials for industrial uses; and include the most important soil-improving and soil-conserving crops. For the 1949 crop or marketing year, they had a total farm value of approximately \$14,200,000,000.

The objective of the research program is to increase efficiency and reduce costs of crop production, insure ample supplies of high quality food and feed crops for an increasing population, and insure supplies of fibers and other raw materials produced on farms in the kinds, quantities and qualities needed by industry. Attainment of these objectives is sought by

- (a) Breeding and selecting improved varieties, high in yield and quality, resistant to disease and other hazards, adapted to different regions and soil types, and superior in handling, nutritional, or technological values.
- (b) Developing practical control methods for crop diseases, weeds, and other hazards through the use of fungicides, herbicides, and other materials.
- (c) Devising cultural practices giving optimum returns in crop yields and quality at minimum cost.

The research program consists primarily of field, greenhouse, and laboratory experiments conducted in cooperation with State Agricultural Experiment Stations, Federal agencies, farmers, crop-improvement associations, and others. Because of the diverse crop, soil, climatic, and other problems, the work is conducted at 95 locations in 37 states. Results are made available to farmers and others through increase and distribution of the improved varieties and by dissemination of information through the State and Federal extension services, publications, the agricultural press, and correspondence.

The benefits of the program cannot be measured exactly, but they have contributed importantly to increased crop yields per acre harvested. The Bureau of Agricultural Economics yield index for 18 principal field crops, using average yield for 1923-32 (pre-drought years) as 100, was 141.2 for 1949 and averaged 136.5 for the five years 1945-49 inclusive. This increase, resulting from many factors, has contributed importantly to efficiency and reduced costs of production.

Examples of Recent Progress: The following examples of progress are illustrative of the many accomplishments in this broad field during the past year:

1. Bunt has returned to plague wheat growers in the Pacific Northwest. Bunt (stinking smut of wheat) caused serious loss in

this area until resistant varieties were introduced in the early 1920's. Bunt trouble then disappeared until recently a new race (dwarf bunt) has again become widespread. Susceptibility of commercial varieties to the new race of bunt has resulted in a marked increase in loss from the disease. Anticipating such troubles, plant breeders have developed new varieties that promise to bring bunt under control again. Wasatch, a dwarf bunt-resistant variety, has already been introduced, and other new high yielding hybrid selections will be released soon.

2. Nine new corn hybrids approved for certification in 1949. One white and seven yellow varieties, better than existing hybrids in one or more important characteristics, were certified for Corn Belt States, and one new yellow hybrid variety was certified for Southeastern States.
3. The development of cotton hybrids is a possibility. Cotton varieties exposed, under certain conditions, to natural cross-fertilization out-yielded inbred lines from 15.4 per cent to as high as 44 per cent. Here is strong evidence that natural crossing can be used for the production of hybrid cotton seed.
4. Mill-run tests used for the first time to determine the spinning suitability of new cotton varieties. To stimulate production of these varieties, spinners volunteered to use the production of promising new varieties. Pima 32, the new American-Egyptian long-staple variety, compared favorably in tests with the Egyptian grown Karnek variety which is imported for making thread and other fine-combed yarn in the United States. Spinners were also enthusiastic about AHA, an unusually strong medium-staple upland strain.
5. Bright prospects of utilizing hybrid vigor in producing grain sorghums. Tests of first-generation grain-sorghum hybrids indicate that the use of certain combinations may yield 40 per cent more grain than the present commercial varieties. More research is needed before seed of adapted hybrids can be produced economically.
6. Improved rice varieties being sought: More than 1,000 rice introductions (largely from China, Japan, and Korea) were grown under detention in a greenhouse at Beltsville, Maryland in 1948. This collection was then grown under normal field conditions at Beaumont, Texas in 1949.
7. Barley varieties resistant to hessian fly found in world collection. From the 4,600 varieties gathered in the world collection, six (all from North Africa) were found to be highly resistant to this insect. Breeding work is under way to incorporate the resistance factor into commercial varieties. This work was performed in cooperation with the Bureau of Entomology and Plant Quarantine.
8. A new greenhouse technique for determining smut resistance has been developed that speeds-up the testing of new barley varieties. It is based on the discovery that plants can be satisfactorily tested while small and that a second crop can be tested during



winter months when periods of artificial light are used at night. It has increased the annual capacity of a greenhouse unit from 9,000 to 61,000 experimental barley plants and will have application in greenhouse research on other crops.

9. Methods developed to re-establish profitable alfalfa seed production in the West. Damage by Lygus bugs and lack of pollination were found to be the cause of low alfalfa seed yields in Utah and southern Idaho. Yields of seed ranging from 300 to 400 pounds per acre were obtained when Lygus bugs were controlled with DDT and pollination was insured with honeybees.
10. Pasture experiments demonstrate value of renovation. Production per acre of total digestible nutrients from grazing was increased 29 per cent over a 4-year period following renovation of pastures at Beltsville, Maryland. This represents an average increase of 1,590 pounds of good hay equivalent per acre annually. The research, which was cooperative with the Bureau of Dairy Industry, included the testing of methods of land preparation, rates and kinds of fertilizer application, rates and mixtures for seeding, and advice on practices of grazing management.
11. Wabash variety of soybean better fitted to combine harvesting. This new high-yielding variety bears its lower pods higher on the stem where combine harvesters can gather more of the beans. It is already becoming popular with farmers. Agronomists expect it to supplant Chief, Patoka, and Gibson varieties in the near future.
12. Tie-weeds in sugarcane fields controlled with 2,4-D. Applied by airplane, 2, 4-D successfully controlled red morning glory, cypressvine, and button tie-vine in sugarcane. The treatment facilitated machine harvesting, increased cane yields, and boosted sugar content. The yield of sugar was increased as much as 52 pounds per ton of cane.
13. Two new improved sugarcane varieties released. C.P. 44/101 is superior to commercial varieties in yield, resistant to all important sugarcane diseases in Louisiana, adapted for mechanical harvesting, has good milling qualities, and is moderately resistant to sucrose inversion. C.P. 44/155 is outstanding in resistance to inversion of sucrose, relatively good in milling qualities, and equal or superior to commercial varieties in other characteristics.
14. A new sugar beet variety, more resistant to curly top, has been developed. This new variety, S.L. 72, also produces good yields.
15. Two new strains of curly top virus found, making 12 known strains. Sugar beet variety, U.S. 56, resistant to 10 strains of the disease showed severe damage from the two new strains in Idaho. Discovery of the new strains again emphasizes the importance of continual plant breeding programs.

16. Discovery of male sterile tobacco offers possibility for the production of hybrid seed. Lines so far developed are being studied for improvement. This discovery suggests possibility of producing a commercial hybrid generation of tobacco that would set no seed and eliminate the need for topping.
17. New chemical treatments found that reduce the disease hazard and the labor requirements of weeding tobacco beds. Calcium, potassium, and sodium nitrates have proved to be effective nematocides and weedicides. Sodium azide is effective against black root rot and nematodes. Allyl alcohol and methyl bromide gas have given excellent weed control. Recommendations for general use of these chemicals are being withheld until they are tested for toxicity to machine operators and residual effects in the soils.
18. Tests show that red squill can be raised in the U. S. Red squill bulbs for making rat poison are imported from the Mediterranean region. Tests have shown the climate of southern California to be suitable for commercial production. Work is in progress to develop strains of high toxicity that can be propagated by seed.

(b) Fruit, Vegetable, and Specialty Crops

Appropriation Act, 1950 .....	\$2,464,000
Anticipated pay adjustment supplemental .....	45,600
Activities transferred in 1951 Estimates to "Salaries and expenses, plant industry, soils, and agricultural engineering, Agricultural Research Administration," field crops .....	-103,000
Base for 1951 .....	2,406,600
Budget Estimate, 1951 .....	2,644,000
Increase .....	<u>+237,400</u>

SUMMARY OF INCREASES, 1951

To place the research program on a more effective operating basis, including repairs and reconditioning of physical facilities at field stations .....	+190,000
For vegetable investigations at the new Southwest Irrigation Field Station, Brawley, California .....	+25,600
Increase necessary to place on a full-year basis in 1951 pay adjustments under Public Law 429 which were in effect for only a part of fiscal year 1950 .	+21,800

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950 (estimated)	Increase		1951 (estimated)
			P.L. 429 adjustment	Other	
1. Deciduous fruit investigations .....	\$442,982	\$426,310	+\$3,610	+\$30,000(1)	\$459,920
2. Citrus, avocado, and other subtropical fruit investigations .....	154,888	150,890	+1,290	+12,000(1)	164,180
3. Nut investigations .....	307,679	295,130	+2,560	+25,500(1)	323,190
4. Vegetable investigations .....	513,468	499,270	+4,920	+49,500(1)	579,290
5. Potato investigations .....	184,966	186,120	+1,130	+13,000(1)	200,250
6. Plants for landscaping and ornamental purposes and farm windbreaks, investigations of ..	222,573	232,800	+2,670	+24,000(1)	259,470
7. Methods of handling, transportation, and storage, and market diseases of fruits and vegetables, investigations of .....	318,568	308,880	+2,590	+4,000(1)	315,470



Project	1949	1950 (estimated)	Increase		1951 (estimated)
			P.L. 429 adjustment	Other	
8. Plant introduction, testing and maintenance of basic stocks .....	242,330	232,450	+2,340	+27,000(1)	261,790
9. Investigations to reduce crop damage caused by nematodes .....	79,065	74,750	+690	+5,000(1)	80,440
10. Replacement of worn-out equipment .....	42,432	--	--	--	--
11. Paint and repair buildings and greenhouses at Plant Industry Station .....	97,260	--	--	--	--
Total pay adjustment costs P.L. 429 .....	--	[43,700]	[+21,800]	[+5,600]	[71,100]
Unobligated balance .....	36,289	--	--	--	--
Total available or estimate .....	2,642,500	2,406,600	+21,800(3)	+215,600	2,644,000
Transfer in 1950 estimates from "Printing and binding, Department of Agriculture" .....	-25,032	--			
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture" .....	+266	--			
Transfer in 1951 estimates to "Salaries and expenses, plant industry, soils, and agricultural engineering, Agricultural Research Administration," field crops ...	+108,466	+103,000			
Anticipated pay adjustment supplemental .....	--	a/ -45,600			
Total appropriation or estimate .....	2,726,200	2,464,000			

a/ Includes \$1,900 applicable to activities transferred in 1951 estimates to "Salaries and expenses, plant industry, soils, and agricultural engineering, Agricultural Research Administration," field crops.

INCREASES

The increase of \$237,400 in this item for 1951 is composed of the following:

(1) Increase of \$190,000 under projects 1 to 9 inclusive to place the research program on a more effective operating basis, including repairs and reconditioning of physical facilities at field stations.

For justification of the need for increase and proposed use of funds, see consolidated justification statement under the sub-appropriation, "Field Crops." The estimated distribution of the increase by financial projects is indicated in the above Project Statement for this subappropriation item.

(2) Increase of \$25,600 under project 4, for vegetable investigations at the new Southwest Irrigation Field Station, Brawley, California.

Note: A companion increase of \$25,600 for soil management investigations at the new Southwest Irrigation Field Station is being requested under the Soils, Fertilizers, and Irrigation subappropriation.

Objective: To breed and select improved disease-resistant varieties of melons, lettuce and other vegetable crops adapted to the winter vegetable producing areas of the Southwest.

Need for Increase: The new Southwest Irrigation Field Station is being established at Brawley, California pursuant to authority provided in the Department of Agriculture Appropriation Act, 1949, and subsequent acts. Eighty acres of land at Brawley were obtained from the Imperial Valley Farmers Association in exchange for the property at the Bard, California station which has been closed.

Appropriations and authorizations totaling \$200,000 already approved provide for the construction of physical facilities, including a crop service building, residences for the superintendent and farm foreman, roads and utilities (these are substantially completed), and for the construction of the center section and one wing of the laboratory building. The 1951 estimates under the Soils, Fertilizers, and Irrigation subappropriation provide for an additional \$100,000 to complete the building program.

A total farm area of approximately 183 acres will be available for the experimental work. In addition to the Federally owned 80-acre tract, the Imperial Valley Farmers Association has made available to the station an adjoining 53-acre tract under a 99-year lease and plans to purchase another adjacent 50-acre tract which will also be made available to the Government for experimental work. The Association has been very active in supporting the station, and growers, shippers, and allied organizations have contributed over \$97,000 for the purchase of the land being made available for

experimental purposes. The Association also plans to sell the Bard station and apply the proceeds, estimated at \$40,000, to the development of the Brawley station. The Department has suggested that this fund be used for the installation of a modern irrigation system and other field facilities.

A broad research program is planned which will include initially research on (a) vegetable breeding, and disease problems, and (b) soil fertility, irrigation, drainage, and crop rotations. Later the research program may be expanded to include forage, cereals, flax, sugar crops, farm machinery, livestock, and entomological investigations.

The research conducted at the Southwest Irrigation Field Station will be applicable to the Imperial Valley and other irrigated valleys of the Southwest having similar climatic, soil, and cropping practices. Data relating to these areas follow:

<u>Area</u>	<u>Irrigated Acres a/</u>	<u>Total Irrigable Acres a/</u>	<u>Total Value of Agricultural Products, 1948 b/</u>
Imperial Valley,			
California.....	400,000	525,000	\$90,601,000
Salt River, Arizona....	356,000	336,000	44,903,000
Coachella Valley,			
California.....	16,000	35,000	15,391,000
Yuma Valley,			
California-Arizona...	58,800	67,300	15,323,000
Palo Verde, California.	38,000	75,000	No report
Gila Project, Arizona..	18,800	29,000	No report

a/ Bureau of Reclamation report, the Colorado River, 1946.

b/ Information obtained from Bureau of Reclamation.

Funds now available for work at the station are limited to \$25,170, consisting of \$22,570 previously available for operation of the Bard, California station, now closed, and \$2,600 for cooperative vegetable investigations already being conducted in the Brawley area. These funds will be required for the operation and maintenance of the station, including labor for irrigation and farm operations; irrigation water charges; electricity, gas, and other utilities; repairs and maintenance of buildings, roads, fences, and grounds; and other miscellaneous operating items. For all practical purposes, none of the existing funds are available for research investigations.

The Imperial Valley is one of the major winter vegetable producing areas in the United States. Disease problems have been a menace to the industry, particularly because of the large concentrated areas of production. Production and shipping costs are high and large losses are being incurred from disease, inferior quality, or low yields. There is particular need for the development of improved mosaic-resistant melon varieties adapted to seasonal pro-



duction during the long 10-month frost-free growing season, and for the development of disease-resistant varieties of lettuce. There are also breeding, disease, and production problems with other intensively grown vegetable crops.

Plan of Work: A geneticist and a pathologist now stationed at La Jolla, California are available for supervising in a general way the vegetable investigations which would be conducted at Brawley. The increase, therefore, would be utilized to employ one professional employee to be immediately responsible for the work at Brawley. He should have sub-professional assistants and farm laborers who would carry out the investigational program in the experimental plots. Initially the emphasis of the investigations would be directed toward the development of mosaic-resistant varieties of melons with high quality and of disease-resistant varieties of lettuce adapted to early, mid-winter, or late season harvesting.

(3) Increase of \$21,800 to place on a full-year basis in 1951 pay adjustments under Public Law 429 which were in effect for only a part of the fiscal year 1950.

# FRUIT, VEGETABLE, AND SPECIALTY CROPS

## Alternate Project Statement

Project	1949	1950	:Increase (+) :or :Estimated:Decrease (-):	1951	1951				Grand Total
					FMA				
					:Section: 10(a)	:Section: 10(b)	:Total	:Research: Fund	
1. Deciduous fruit investi- gations .....	442,982	426,310	\$33,610	459,920	--	64,700	64,700	--	524,620
2. Citrus, avocado, and other subtropical fruit investiga- tions .....	154,888	150,890	\$13,290	164,180	--	18,500	18,500	--	182,680
3. Nut investigations .....	307,679	295,130	\$28,060	323,190	--	--	--	--	323,190
4. Vegetable investigations ...	513,468	499,270	\$80,020	579,290	--	55,400	55,400	84,500	719,190
5. Potato investigations .....	184,966	186,120	\$14,130	200,250	--	--	--	--	200,250
6. Plants for landscaping and ornamental purposes and farm windbreaks, investigations of	222,573	232,800	\$26,670	259,470	--	--	--	--	259,470
7. Methods of handling, trans- portation, and storage, and market diseases of fruits and vegetables, investigations of	318,568	308,880	\$6,590	315,470	82,500	27,700	110,200	--	425,670
8. Plant introduction, testing, and maintenance of basic stocks .....	242,330	232,450	\$29,340	261,790	30,000	102,500	132,500	--	394,290
9. Investigations to reduce crop damage caused by nema- todes .....	79,065	74,750	\$5,690	80,440	--	51,300	51,300	--	131,740
10. Replacement of worn-out equipment .....	42,432	--	--	--	--	--	--	--	--
11. Painting and repair of buildings and greenhouses at Plant Industry Station .....	97,260	--	--	--	--	--	--	--	--

Project	1949	1950 Estimated	Increase (↑) or Decrease (-)	1951 Estimated	1951				Grand Total
					RMA				
					Section: 10(a)	Section: 10(b)	Total	Research: Fund	
12. Basic studies of plant growth and development .....	--	--	--	--	8,200	--	8,200	67,800	76,000
13. Investigation and control of plant disease epidemics ...	--	--	--	--	--	--	31,800	--	31,800
14. Pay adjustment costs .....	--	[43,700]	[27,400]	[71,100]	[2,700]	[8,900]	[11,600]	[4,500]	[87,200]
Unobligated balance .....	36,289	--	--	--	--	--	--	--	--
Total available .....	2,642,500	2,406,600	237,400	2,644,000	120,700	351,900	472,600	152,300	3,268,900
Transfer in 1950 estimates from "Printing and binding, Department of Agriculture" .....	-25,032	--	--	--	--	--	--	--	--
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture" .....	266	--	--	--	--	--	--	--	--
Transfer in 1951 estimates to "Salaries and expenses, plant industry, soils, and agricultural engineering, Agricultural Research Administration," field crops .....	108,466	103,000	--	--	--	--	--	--	--
Anticipated pay adjustment supplemental .....	--	-45,600	--	--	--	--	--	--	--
Total appropriation or estimate	2,726,200	2,464,000	--	--	--	--	--	--	--



# RMA PROJECTS

Finan- cial Proj. No.	RMA Proj. No.	Project Title	1949	1950 (est.)	Adjustments for 1951 P. 1429 Contract Other	1951 (est.)
		Section 10(a) Utilization research:				
7	44	Prepackaging of perishable horticultural products, particularly studies of quality preservation	46,480	50,600	+500	36,100
7	45	Prevention of decay and spoilage in transported fruits and vegetables	27,668	30,600	+300	30,900
7	147	Predetermining and evaluating the cooking quality of potatoes	9,876	15,300	+200	15,500
12	272	Production of plant growth regulating compounds from agricultural sources	7,979	8,100	+100	8,200
8	614	To inventory and analyze industrial requirements for plant materials that might be supplied from domestic sources				
		Total, Section 10(a)	92,003	104,600	+1,100	120,700
		Section 10(b) Research other than Utilization:				
1	23	Research on the virus diseases of stone fruits	24,690	45,800	+400	46,200
9	48	Investigations on nematodes as limiting factors in crop production in the Northeast, South, and Southwest	37,761	50,900	+400	51,300
13	51	Research to facilitate better forecasting of the development of plant disease epidemics	31,391	31,500	+300	31,800
4	54	Regional investigations to improve the peanut crop through use of superior varieties and methods of harvesting and curing	19,612	20,300	+200	20,500

Finan- cial Proj. No.	RMA Proj. No.	Project Title	1949	1950 (est.)	Adjustments for 1951			1951 (est.)
					P.L. 429	Contract	Other	
		:Section 10(b) Research other than utilization:(Cont.)						
4	72	1/ Toxicological effects of insecticides	- -	10,200:	+100:	- -	- -	10,300
8	111	Establish a cooperative national program for the introduction and testing of new plants of potential value in American agriculture and for the preservation of valuable breeding stocks						
			81,177:	101,600:	+900:	- -	- -	102,500
7	165	Regional marketing research on fruits and vegetables: (other than citrus and potatoes)	7,646:	16,300:	+100:	- -	- -	16,400
7	174	2/ Regional marketing research on potatoes	9,745:	11,200:	+100:	- -	- -	11,300
4	289	Increased seed production of dry and snap beans, peas and other vegetables through breeding for multiple resistance to disease and insect damage	19,792:	24,400:	+200:	- -	- -	24,600
1	530	Virus diseases of strawberries	- -	18,300:	+200:	- -	- -	18,500
2	531	Testing of citrus rootstocks for resistance to foot rots and gummosis, to salinity, and to nematodes	- -	18,300:	+200:	- -	- -	18,500
		Total, Section 10(b)	231,814:	348,800:	+3,100:	- -	- -	351,900
		Total, RMA	323,817:	453,400:	+4,200:	+30,000:	-15,000:	472,600

1/ See also Soils, Fertilizers, and Irrigation.

2/ See also Agricultural Engineering.

Finan- cial Proj. No.	RMA Proj. No.	Project Title	1949	1950 (est.)	Adjustments for 1951 P. L. 429	1951 (est.)
		<u>Special Research Projects</u>				
		<u>Laboratories:</u>				
4	3-1	Research into the heredity and behavior of vege- table crop plants for the development of improved varieties having superior adaptation to the Southeastern region of the United States	93,000	84,000	+500	84,500
		<u>Projects:</u>				
12	2-122	Effects of light on the regulation of growth and development of plants	31,670	32,300	+500	32,800
12	2-123	Study of synthetic plant growth regulating substances	32,250	34,500	+500	35,000
		Total, Projects	63,920	66,800	+1,000	67,800
		Total, Special Research Fund	156,920	150,800	+1,500	152,300



(a) An adjustment of \$15,000 under project 44, "Prepackaging of perishable horticultural products" to reflect elimination of certain phases of cooperative work with the Florida Vegetable Prepackaging Council and the Washington State Apple Commission on packaging apples.

Under a cooperative agreement with the Florida Agricultural Experiment Station and the Florida Vegetable Prepackaging Council, a three-year program was established under which \$5,000 has been allocated annually since fiscal year 1948 to support research on the prepackaging of sweet corn, broccoli, and other vegetables. The Marketing Research Branch of PMA has also cooperated in the work. This program will be completed by the end of fiscal year 1950.

An allocation of \$10,000 was made in fiscal year 1950 to provide for physiological and pathological studies which were requested in connection with investigations of the prepackaging of apples in the Pacific Northwest and shipment in carload lots to distant markets. These investigations are being conducted by the Production and Marketing Administration and the Washington State Apple Commission, operating under a contract with PMA. This work has been planned as a one-year program.

CHANGE IN LANGUAGE

The estimates include a proposed change in the language of this item as follows (deleted matter enclosed in brackets):

For investigations on the production, improvement, and diseases of fruit, vegetable, nut, ornamental, [drug, condiment, oil, insecticide,] and related crops and plants, ....

This change deletes the words "drug, condiment, oil, insecticide" in accordance with the proposed transfer in the estimates of the two projects (1) "Drug, oil, raticide, insecticide, tannin, flavoring and special product plant investigations" and (2) "Hop production, breeding, disease, and quality investigations" from this subappropriation item to the Field Crops subappropriation. Formerly a small division, known as the Drug and Related Plants Division, conducted the work of these two projects under the Fruit, Vegetable, and Specialty Crops subappropriation. Because the work was very closely related to the field crops research and for economy of operations and other administrative reasons, this small division was merged into the Tobacco Division, a larger division financed from the Field Crops subappropriation. The transfer in the estimates of these two projects is proposed to facilitate administration and simplify accounting and budgetary operations.

## STATUS OF PROGRAM

Current Activities: This appropriation provides for research on

1. The production and improvement of fruit, vegetable, nut, and ornamental crops.
2. Diseases and deterioration involved in handling, processing, transporting, and storing fruits and vegetables.
3. The introduction and testing of new plant materials and the maintenance of basic stocks.
4. The control of nematodes causing crop damage.

The fruit, vegetable, and nut crops include the great health protectors in our diet as well as highly important staple food sources. For the 1949 crop or marketing year, they had a total farm value in excess of \$2,800,000,000.

The objective of the research program for these crops is to increase efficiency and reduce costs of crop production and to insure ample food supplies of high quality for an increasing population. These objectives are sought by:

- (a) Breeding and selecting improved varieties, high in yield and quality, resistant to disease and other hazards, superior in marketing and nutritional qualities, and adapted to different regions and soil types.
- (b) Developing more efficient production practices, including fertilization, cultivation, pruning, spraying, and harvesting to give optimum returns at minimum cost.
- (c) Developing and testing more efficient and economical materials and methods for controlling diseases and nematodes.
- (d) Devising the most efficient and economical methods of packing, shipping and storing fresh produce to prevent waste and to provide for its delivery in prime condition to the ultimate consumer.
- (e) Introducing new plants and strains from all parts of the world, by exploration, exchange, or purchase, and testing and propagating selections valuable as new crops or useful in breeding varieties superior to those now grown.

The research program consists primarily of field, laboratory, green-house, packing, transportation and storage experiments conducted in cooperation with State agricultural experiment stations, various Federal agencies, growers, shippers, and others. Because of the diverse crops and wide range of climatic and soil conditions, the work is conducted at approximately 73 locations in 33 states and one



foreign country. Results of the work are made available to farmers, shippers and others through the Federal-State extension service, the agricultural press, publications, and correspondence. Cooperative arrangements are made for the rapid testing, increase, and distribution of seeds or propagating stocks of new improved varieties.

The program has benefited growers, marketers, and consumers. It has contributed importantly to increased crop yields. For example, the Bureau of Agricultural Economics yield index for 10 fruit crops, using 1923-32 average yield as 100, was 152.9 for 1949 and averaged 146.8 for the five years 1945-49. It is estimated that 85% of the head lettuce grown commercially in the United States stems from the lettuce breeding improvement program of the Department. Plant introductions from foreign countries have provided many of our major crops, as well as material for breeding improved varieties. The development of better methods of handling, transportation, and storage of fresh produce has reduced costs and improved the quality and variety of our food supply.

Selected Examples of Recent Progress: The following examples of progress are illustrative of the many accomplishments in this field during the past year:

1. The set of Anjou pears in the Wenatchee Valley of Washington increased by a spray application of boron. Because the Anjou often sets poorly, the use of boron spray may prove to be a means of inducing much more uniform production of this important variety.
2. Apple orchards in the Wenatchee Valley of Washington show no benefit from phosphorus and potash applications. A 10-year study of tree growth, yields, and chemical analysis indicated no benefit from the phosphorus and potash fertilization, but possible injury due to serious reduction in available magnesium.
3. Some citrus rootstocks appear resistant to tristeza disease. Initial tests suggest that sweet orange, mandarin varieties, and trifoliate hybrids are satisfactorily tolerant of tristeza disease. All varieties of sour orange, grapefruit and pummelo appear susceptible. Testing is still under way with nearly 300 varieties of citrus in cooperation with Instituto Agronomico at Campinas, Brazil. Duplicates of the material sent to Brazil have been held in this country for testing in Florida and Texas.
4. 2,4-D proved effective on hard-to-kill pecan and chestnut stumps. The first treatment of 2,4-D to sprouts and stumps of 18-year-old pecan trees killed 93 per cent of the stumps. A second treatment killed all remaining. One application to stumps of 11-year-old Chinese chestnuts gave a 74 per cent kill.
5. Premium prices received for fruit of new tung nut varieties. Orchards of 8-year-old trees of the new Isabel variety,

developed under the nut research program; returned \$12 to \$15 more per ton in 1948 than the average fruit from seedling orchards with lower oil content.

6. Proper fertilization of tung trees increases frost resistance and lowers production costs. Trees properly fertilized suffered only 3 per cent frost damage in 1948 whereas improperly fertilized trees showed 23 to 26 per cent damage. Experiments in fertilizing tung orchards have demonstrated that nitrogen applied in liquid forms is as satisfactory as the solid ammonium nitrate. The liquid forms are available at about one-half the cost of solid forms.
7. A new tomato variety developed for the High Plains and other short-season areas. The new Alpine variety matures about one week earlier than other early varieties. It is also valuable for crossing with standard commercial varieties to produce hybrid seed for high-yielding early tomato crops.
8. Improved methods developed for canning sweetpotatoes. Canning of sweetpotatoes has usually been limited to the period during and shortly after harvest. It has been found that sweetpotatoes from storage could be canned satisfactorily if soaked for 20 hours in a 0.5 per cent citric acid solution.
9. Chinese wing-nut found to be an excellent rootstock for commercial walnut orchards. During ten years of testing, rootstocks of Chinese wing nut have displayed exceptional vigor, some resistance to nematode damage, and general superiority to stock commonly used now.
10. Peanuts dusted or sprayed for pest control yield more when harvesting is delayed. Delayed harvesting increased yields from treated fields 400 to 500 pounds of unshelled nuts per acre.
11. New technique developed for studying certain plant virus diseases. Newly developed serological tests will greatly facilitate the identification and study of the interrelationships of the complex viruses that cause crop losses in the cabbage family.
12. Progress in control of watery soft rot of beans. Two new fungicides, Zerlate and bismuth subsalicylate, gave a worthwhile degree of control of this stubborn disease in tests in Oregon where it has caused considerable damage to pole beans.
13. A new variety of head lettuce introduced for the East. "Progress" is resistant to tipburn, is relatively slow to bolt, and forms firm sound heads under conditions too warm for the Western types of head lettuce. This new variety is the result of 20 years of breeding and development for adaptability to Eastern conditions.



14. Supposed fungus disease of mushrooms caused by nematodes. Recent findings show that damage to mushrooms, heretofore attributed to a fungus disease is caused by nematodes instead of a fungus. The fungi feed upon the nematodes. This suggests the possibility of a biological means of helping to control other damage caused by various nematodes.
15. A new strain of crystal wax onion is introduced. Crystal Wax L 690 has less tendency to bolt and split than present commercial strains. Foundation stock is being increased for commercial test plantings.
16. New hybrid potato seedlings appear to have complete immunity to late blight. By cross-breeding seedlings of wild and commercial potato varieties, selections apparently immune to all known races of blight have been produced. Two selections have good market quality and are being tested for yield and other characters of economic importance.
17. Improved gardenia varieties developed. Tetraploid forms of Belmont and Veitch gardenias have been developed that produce flowers of better substance and two-thirds larger size than diploid types. Several years will be required to propagate sufficient stock for thorough commercial testing.
18. Proper curing of Dutch iris bulbs reduces "blindness." Experiments have demonstrated that curing bulbs at 75° to 85° F. for 3 to 5 weeks following digging speeds up blooming and reduces "blindness" (production of leaves instead of flowers) which has been a major problem in the commercial growing of Dutch iris under glass.
19. Extensive movement of plant materials continues through the Division of Plant Exploration and Introduction. During fiscal year 1949, more than 200,000 consignments were dispatched within the United States and 13,431 were sent to foreign addresses.
20. Pressurized cabins found unnecessary for transporting fruits and vegetables by air. Simulated flight conditions used in the tests were far more severe than actual flights. All fruits and vegetables tested came through without injury from high altitudes or rapid climb or descent except an occasional individual soft-ripe fruit or vegetable.



(c) Forest Diseases

Appropriation Act, 1950 .....	\$401,740
Anticipated pay adjustment supplemental .....	7,300
Base for 1951 .....	409,040
Budget Estimate, 1951 .....	458,300
Increase .....	<u>+49,260</u>

SUMMARY OF INCREASES, 1951

To place the research program on a more effective operating basis, including repairs and reconditioning of physical facilities at field stations .....	+20,000
To determine methods of safeguarding farm buildings from losses due to decay as an integral part of the farm housing program ..	+25,000
To place on a full-year basis in 1951 pay adjustments under P.L. 429 which were in effect for only a part of fiscal year 1950 .....	+4,260

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs. Parenthetical amounts opposite the lettered subprojects represent the detail of the numbered main project which immediately precedes.)

Project	1949	1950 (estimated)	Increase P.L. 429 adjustment	Other	1951 (estimated)
1. Diseases of forest and shade trees and forest products:	388,784	409,040	+4,260	+20,000(1)	458,300
(a) Diseases that affect timber stands, reduce lumber production, and influence logging operations ...	(148,768)	(160,100)	(+1,630)	(+4,600)	(166,330)
(b) Diseases of young natural stands and plantations ..	(38,603)	(38,740)	(+500)	(+5,300)	(44,540)
(c) Forest nursery diseases .	(3,876)	(4,060)	(+40)	(+6,100)	(10,200)
(d) Decays and disease defects of lumber and other forest products .....	(82,702)	(86,560)	(+900)	(+25,800)	(113,260)

(Continued on next page)

Project	1949	1950 (estimated)	Increase		1951 (estimated)
			P.L. 429 adjustment:	Other	
(e) Diseases of street and shade trees .	(99,277)	(103,520)	(+1,030)	(+1,000)	(105,550)
(f) Diseases of trees in National Parks, parkways, recreational areas of National Forests and other public undertakings .....	(15,558)	(16,060)	(+160)	(+2,200)	(18,420)
2. Replacement of worn-out equipment .....	7,690	- -	- -	- -	- -
Total pay adjustment costs, P.L. 429 .....	- -	[7,300]	[+4,260]	[+1,470]	[13,030]
Unobligated balance .....	6,368	- -	- -	- -	- -
Total available .....	402,842	409,040	+4,260(3)	+45,000	458,300
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture" ..	+37	- -			
Transfer in 1950 estimates from "Printing and Binding, Department of Agriculture" ..	-1,499	- -			
Anticipated pay adjustment supplemental ..	[- -]	-7,300			
Total appropriation or estimate .....	401,380	401,740			

INCREASES

The increase of \$49,260 in this item for 1951 is the result of the following changes:

(1) Increase of \$20,000 to place the research program on a more effective operating basis, including repairs and reconditioning of physical facilities at field stations.

For justification of the need for increase and proposed use of funds, see consolidated justification statement under the subappropriation, "Field Crops".

(2) Increase of \$25,000 under sub-project (d), "Decays and disease defects of lumber and other forest products" to determine methods of safeguarding farm buildings from losses due to decay as an integral part of the farm housing program.

Need for Increase: The large use in farm buildings of second-growth timber having a high percentage of decay-susceptible sapwood has increased the losses due to decay. Intensive investigations are needed to determine the least expensive methods of reducing such losses.

Decay in farm buildings has never been studied intensively. Most farm construction is of wood and a large proportion of the buildings are without basements. The high humidity frequently found in barns and farm storage structures increases the decay hazard. Recent studies of methods of reducing decay losses in wood porches and under houses without basements have resulted in the development of valuable protective measures. The studies need to be extended to farm structures of all types.

Investigation should be undertaken to determine various economical methods of preventing moisture accumulation which increases decay hazards, to determine the decay-resistance of woods that are locally available, and to determine the decay-preventive effectiveness of special preservative treatments that can be applied in construction and repair work. A systematic examination also is needed of existing structures in the more humid regions to determine what parts of farm buildings have sufficient decay hazard to warrant preservative treatment.

Plan of Work: Investigations on the development of methods of reducing decay losses would be conducted by pathologists stationed in the following three regions of the humid area, the South, the Lake States, and the Northeast. The personnel would be stationed at existing field stations and would work cooperatively with the Forest Service, Farmers' Home Administration, Housing and Home Finance Agency, and other agencies.

During the first year, decay damage of existing structures would be studied in the humid areas surrounding the three field stations. Such studies would develop useful classified information on the frequency and location of decay in different types of farm structures and its relation to exposure to rain, soil, and to condensation moisture. Such data would be used to determine what changes in construction detail may be advisable and the situations which warrant the expense of chemical preservative treatment.



Studies will be made to determine construction practices and materials that will retard or prevent moisture which is an essential condition to decay. Since some parts of buildings cannot be kept dry, chemical treatment is needed for them. However, chemically treated lumber is not generally available to builders. Research, therefore, would be undertaken on the use on lumber of various chemical preservatives that can be applied during the course of construction or repair, or to decay-infected areas in existing structures.

Results and recommendations based on this research work will be incorporated into the plans and specifications being prepared for farm buildings, and will be made available to the Farmers' Home Administration for dissemination to loan applicants, to the Extension Service for dissemination to farmers generally, and to the Housing and Home Finance Agency. Results of the work will also be made available through publications, the press, and correspondence.

(3) Increase of \$4,260 to place on a full year basis in 1951 pay adjustments under P. L. 429 which were in effect for only a part of the fiscal year 1950.

FOREST DISEASES

Alternate Project Statement

Project	1949	1950 Estimated	Increase (+) or Decrease (-)	1951 Estimated	1951 RNA Section 10(a)	Grand Total
1. Diseases of forest and shade trees and forest products. ....	388,784	*49,260	+49,260	458,300	43,200	501,500
2. Replacement of worn-out equipment .....	7,690	---	---	---	---	---
3. Pay adjustment costs .....	---	[7,300]	[+5,730]	[13,030]	[1,200]	[14,230]
Unobligated balance .....	6,368	---	---	---	---	---
Total available .....	402,842	409,040	49,260	458,300	43,200	501,500
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture" .....	+37	---	---	---	---	---
Transfer in 1950 estimates from "Printing and binding, Department of Agriculture" ..	-1,499	---	---	---	---	---
Anticipated pay adjustment supplemental .....	---	-7,300	---	---	---	---
Total appropriation or estimate .....	401,380	401,740	---	---	---	---

RMA Projects

Finan- cial Proj. No.	RMA Proj. No.	Project Title	1949	1950 (est.)	Adjustments for 1951 P.L. 429	1951 (est.)
		Section 10(a) Utilization research:				
1	47	Determination of the decay rate and profitable salvage period for insect-killed and fire- damaged timber	42,037	42,700	+500	43,200

*W. B. Allen - Bureau of Entomology and Plant Quarantine*



## STATUS OF PROGRAM

Current Activities: Governmental responsibility for research on diseases of trees and forest products is centralized under this appropriation. Accordingly, the Forest Service and National Park Service depend on the Bureau for the development of methods for preventing or controlling diseases on the millions of acres of national forests and national parks; the Soil Conservation Service depends on it for methods of controlling diseases in nurseries and erosion control plantings; and State agencies, municipalities, and private owners depend on it for assistance in the control of diseases of shade trees, forests, and forest products. Losses from disease constitute one of the largest drains on the forest resources and approach or exceed the losses from fire.

The objective of the research program is to increase the value of forest and shade trees and forest products by:

- (a) Identifying forest diseases and determining their life cycles, and alternate host plants, if any.
- (b) Developing effective and economical disease control methods and management practices for use with forest, shade, and nursery trees.
- (c) Developing treatments which will prevent decay in lumber, buildings, and wood products.
- (d) Improving methods of inspection and grading to avoid deteriorated wood without needless rejection of valuable material, and
- (e) Breeding, selecting, and testing tree varieties resistant to specific diseases.

The research program consists of field surveys and tests as well as laboratory investigations. The work is conducted at 23 locations, mostly in cooperation with other agencies and private owners. Results of the work are made available through direct contact, the Federal-State extension service, publications, the press, and correspondence.

The benefits of the program can be measured in annual savings of millions of dollars. Research results include the development of methods which: (1) reduce losses from sap stains and rots, in lumber and wooden structures, (2) prevent the damping-off disease in forest nurseries, (3) provide the basis for conducting forest and shade tree disease control programs. The research has also developed through breeding and testing work, new strains resistant to chestnut blight, Dutch elm, and other important tree diseases.

Examples of Recent Progress: The following examples illustrate accomplishments in this field during the past year:

1. A new method for rapidly increasing stocks of disease-resistant elm trees. Leaf-bud cuttings taken from greenhouse grown

plants, potted stock, and field grown trees have rooted and sent forth new shoots. Each cutting consisted of a single leaf blade, an axillary bud and a shield of stem tissue. This new method has been successfully used with disease resistant American elms, and permits faster increase of stocks than former methods.

2. Improved method speeds up laboratory tests of wood preservatives. The equivalent of several years of preliminary field testing is completed in only 4 months' time with a new laboratory method. It permits intelligent selection of preservatives worthy of inclusion in the much slower field trials. In some instances immediate selection can be made for large scale use. The new method, developed cooperatively with the Bell Telephone Laboratories and Forest Service, is already being adopted by university and industrial laboratories.
3. Better methods developed for fusiform rust control in southern pines. Experiments indicate that one pruning, timed to follow the occasional year of heavy rust infection, will substantially reduce losses in plantations already established. By spraying seedlings in nursery seedbeds with new and more effective chemicals, rust infection can be reduced and the danger of transplanting infected seedlings into outplantings can be minimized.
4. Fuel-saving method developed for preventing decay in basementless buildings. Condensation of moisture in winter often leads to decay of sills and joists. This has been found preventable in tests lasting six years, by rolling out asphalt roofing on the soil under the building. The troublesome moisture vapor is stopped at its source. The old recommended method of ventilating the crawl space under the building resulted in cold floors and in the North was generally disliked.



(d) Soils, Fertilizers, and Irrigation

Appropriation Act, 1950 .....	\$1,966,000
Estimated supplemental appropriation for 1950 to liquidate contract authorization for construction or acquisition of buildings, facilities, and equipment at new Southwest Irrigation Field Station, Brawley, California .....	100,000
Anticipated pay adjustment supplemental, 1950 .....	35,100
Activities transferred in 1951 Estimates from "Salaries and expenses, Soil Conservation Service, Soil Conservation Operations" for correlation of soil types and inspection of soil surveys .....	205,000
Base for 1951 .....	2,306,100
Budget Estimate, 1951 .....	2,593,000
Increase, 1951 .....	a/ +286,900

SUMMARY OF INCREASES, 1951  
(On the basis of available funds) .....

To place the research program on a more effective operating basis, including repairs and reconditioning of physical facilities at field stations .....	+90,000
For soil management investigations at the new Southwest Irrigation Field Station, Brawley, California .....	+25,600
Increase of \$100,000 for construction of buildings and facilities at the new Southwest Irrigation Field Station, Brawley, California, offset by contractual authority of \$100,000 contained in 1950 Agricultural Appropriation Act for which a supplemental appropriation is anticipated for fiscal year 1950 .....	—
to accelerate the preparation of soil maps for publication through improved methods .....	+150,000
Increase necessary to place on a full-year basis in 1951 pay adjustments under Public Law 429 which were in effect for only a part of fiscal year 1950 .....	+21,300

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs. Parenthetical amounts opposite the lettered subprojects represent the detail of the numbered main project which immediately precedes.)

Project	1949	1950	Increase		1951
			P. L. 429	Other	
		(estimated)	adjustment		(estimated)
1. Soil improvement, management and irrigation investigations: .....	\$795,079	\$906,530	+\$8,090	+25,600	\$1,020,220
(a) Management of soils: .....				(2)	
of the humid region: (34,750)		(34,320)	(+230)	—	(34,550)
(b) Management of soils: .....					
of the dry land regions .....	(262,043)	(274,690)	(+2,310)	(+63,400)	(340,400)

a/ Based on the presently available appropriation, represents an increase of \$386,900. However, it is anticipated that a supplemental appropriation will be provided in fiscal year 1950 to liquidate obligations incurred under contract authorization of \$100,000 contained in 1950 Agricultural Appropriation Act.



Project	1949	1950 (estimated)	Increase		1951 (estimated)
			P. L. 429 adjustment	Other	
1. Soil improvement, management and irrigation investigations: (Cont.):					
(c) Management of soils under irrigation .....	(345,506)	(442,780)	(+3,770)	(+38,200)	(484,750)
(d) Basic soil plant relationships, including tilth, moisture, fertility and soil organisms .....	(152,780)	(154,740)	(+1,780)	(+4,000)	(160,520)
2. Fertilizers and their improvement ...	231,393	235,930	+3,560	+6,000(1)	245,490
3. Soil classification for crop production ..	896,215	1,063,640	+9,650	4,000(1) +150,000(3)	1,227,290
4. Replacement of worn-out equipment .....	33,000	--	--	--	--
5. Construction or acquisition of buildings, facilities, and equipment, at new Southwest Irrigation Field Station, Brawley, California .....	100,000	100,000	--	-- (4)	100,000
Total pay adjustment costs, P. L. 429 .....	[--]	a/[38,600]	[+21,300]	[+4,620]	[64,520]
Unobligated balance .....	6,434	--	--	--	--
Total available or estimate .....	2,062,121	2,306,100	21,300(5)	265,600	2,593,000
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture" ..	+136	--			
Transfer in 1950 estimates from:					
"Printing and binding, Department of Agriculture" .....	-144,657	--			
"Salaries and expenses, Soil Conservation Service, Soil Conservation Operations" ...	-200,700	-205,000a/			
Anticipated pay adjustment supplemental .....	--	-35,100			

a/ Includes \$3,500 applicable to activities transferred in 1951 estimates from "Salaries and expenses, Soil Conservation Service, Soil Conservation Operations."

Project	1949	1950 :(estimated)	Increase		1951 :(estimated)
			P. L. 429 : adjustment:	Other	
Anticipated supplemental estimate to construct or acquire buildings, facilities, and equipment for the new Southwest Irrigation Field Station, Brawley, California .....	--	-100,000	:	:	:
Total appropriation or estimate .....	1,716,900	1,966,000	:	:	:

### INCREASES

The increase of \$286,900 in this item for 1951 is composed of the following:

(1) Increase of \$90,000 under projects 1 to 3 inclusive to place the research program on a more effective operating basis, including repairs and reconditioning of physical facilities at field stations.

For justification of the need for increase and proposed use of funds, see consolidated justification statement under the subappropriation, "Field Crops." The estimated distribution of the increase by financial projects is indicated in the above Project Statement for this subappropriation item.

In addition to the construction work involved in this proposed increase, and the normal, recurring type of maintenance-repair work required for the maintenance of physical facilities, it is planned to build, within existing available funds, a small storage building at Plant Industry Station, Beltsville, Maryland, costing not more than \$5,000, needed to provide storage space required for the adequate protection of equipment and other government property. The structure would be of cinder block construction, and measure approximately 20' x 30'. Statement of the intention to construct this storage structure is noted here due to the provision in the language of the appropriation to the Office of the Administrator, Agricultural Research Administration, that " .... the several appropriations of the Agricultural Research Administration shall be available for the construction, alteration, and repair of buildings and improvements: Provided, however, That unless otherwise provided, .... the total amount for construction of buildings costing more than \$2,500 each shall be within the limits of the estimates submitted and approved therefor, ....."

(2) Increase of \$25,600 under project 1(c), "Management of soils under irrigation," for soil management investigations at the new Southwest Irrigation Field Station, Brawley, California.

Note: A companion increase of \$25,600 for vegetable investigations at the new Southwest Irrigation Field Station is being requested under the Fruit, vegetable, and specialty crops subappropriation.



Objective: To determine the irrigation, drainage, fertilizer, soil management, and crop rotation practices that will produce the best crop yields on a sustained basis.

Need for Increase: The companion justification under the Fruit, vegetable, and specialty crops subappropriation has described the recent establishment of the Southwest Irrigation Field Station, its size and facilities, the excellent grower support, the regional character and scope of the research work to be performed, and the practical inability of the station to undertake research investigations with existing funds, since they are required for farm and station maintenance and operations.

The Imperial Valley has many irrigation, drainage, fertility and soil management problems which need to be studied in order to secure and maintain the high productivity essential to profitable grower operations. The present agriculture is an intensive one, but the productivity of the land is going down. The growing season is long, approximately 10 months being frost-free; the temperatures are extremely high and water use is heavy. Irrigation is by Colorado River water, which contains approximately one ton of salts per acre foot of water. Investigations on rates of water use, methods of irrigation, and more efficient water management are urgently needed for the available soils of this area. Fertilizer practices must be modified with different irrigation methods, and control of salinity can be accomplished only by the best soil and water management practices. Work to develop optimum combinations of irrigation, drainage, soil management and fertilizer practices is urgently needed in this area.

Plan of Work: Under the leadership of the station superintendent (agronomist), two soil scientists, with two scientific aides and temporary assistants would initiate irrigation, drainage, fertility, and other soil management investigations in the valley. Studies would be made of methods of irrigation, rate of water use, fertilizer and methods of fertilizer application, and other soil building practices. Fertility, irrigation, drainage, and crop adaptability studies would be closely integrated to develop combinations of practices to keep the soils fertile and productive, to control salinity, and to make possible the production of high crop yields on a permanent basis. The investigations would be planned to provide information on problems common to the irrigated areas in the Southwest region.

(3) Increase of \$150,000 under project 3, "Soil classification for crop production", to accelerate the preparation of soil maps for publication by methods which will enable the time and cost of printing to be reduced.

Need for Increase: More rapid preparation and printing of soil maps is needed to overcome a considerable backlog of soil surveys awaiting publication. The delay in publication prevents farmers and others from benefiting from the surveys, and hinders the work of private, State, and Federal organizations which use them. It is also bringing criticism from the cooperating State agencies that have completed their portion of the work but have no resulting publications which they can distribute.



The inadequacy of present funds results primarily from two factors:

- (1) There has been an increase in the scale of maps and the degree of detail shown on them. Present maps are about four times as large as those formerly published. The published map for an average county with present scales is approximately 4,900 square inches, whereas previously it was about 1,225 square inches. The detail on the map has increased correspondingly so that altogether there has been a sharp increase in the number of man-hours required for map preparation for the same land area.
- (2) There has been an increase in the costs of map reproduction. The average commercial cost per job for partial map preparation and lithography 10 years ago was \$2,050 as compared with around \$11,500 today, an increase of more than 5 times. Part of the increased cost is due to the larger scale and greater detail, but the major part of the increase is caused by higher costs of labor, supplies, and equipment.

The Bureau has undertaken more complete map preparation in order to reduce printing costs and delays in printing. Previously soil maps were submitted as a single manuscript to commercial firms for lithography. This necessitated redrafting and other operations by the lithographers to prepare the necessary color separation plates. Few lithographers are equipped for such map preparation and this has limited the number of bidders, increased costs, and caused delays in procuring completed maps. While more complete map preparation by the Bureau has increased its cartographic costs, there has been a reduction in lithographic costs through the avoidance of duplication in certain phases of the work, and an increase in the number of competitive bidders for the work. Prompt lithography work has been facilitated and earlier publication of the maps has been made possible.

Plan of Work: At the present time, soil maps are being submitted to the lithographic contractors in two color separations suitable for direct copy for lithography. Under the proposed increase, it is planned that complete color separation, including soil tints, will be undertaken. Although this will still further increase the cartographic work in the Bureau, it is estimated that such increases will be more than offset by a reduction in the costs of commercial lithography, so that there will be a net over-all savings to the government of almost 25 per cent, which would be available for more adequately financing the map preparation work.

The proposed increase would provide for the preparation and printing of approximately 10 more soil maps per year than present funds permit, and thereby aid in reducing the backlog of soil surveys awaiting publication.

In 1951 and 1952, a part of the increase would be required for the purchase of equipment needed for the complete color separation work and for the remodeling of space at the Plant Industry Station. The full impact of the increase on map preparation, therefore, would not be realized until the third year.

(4) Increase of \$100,000 under project 5 for construction of buildings and facilities at the new Southwest Irrigation Field Station, Brawley, California (non-recurring) offset by contractual authority of \$100,000 contained in the 1950 Agricultural Appropriation Act to construct or acquire buildings, facilities, and equipment for the station at Brawley for which a supplemental appropriation is anticipated in fiscal year 1950.

Need for Increase: Authority to establish and to construct or acquire buildings, facilities, and equipment for the Southwest Irrigation Field Station, Brawley, California was contained in the Department of Agriculture Appropriation Act, 1949, and subsequent acts. Eighty acres of land at Brawley have been obtained from the Imperial Valley Farmers Association in exchange for the property at the Bard, California station which has been closed. In addition, the Association has leased to the government an adjoining 53-acre tract under a 99-year lease and plans to purchase another 50-acre tract which will also be made available for experimental work. The Association has been very active in support of the station, and growers, shippers, and allied organizations have contributed over \$97,000 for the land being made available to the government, and plans to apply the proceeds from the sale of the Bard station, estimated at \$40,000, to the further development of the Brawley station.

Construction of a portion of the physical facilities required at the station have been initiated under appropriations and contract authorizations totaling \$200,000. Under an appropriation of \$100,000 for fiscal year 1949, plans and specifications for the building program have been prepared, and construction of a crop service building, residences for the superintendent and farm foreman, and some of the roads, walks, and utilities have been completed. The Department of Agriculture Appropriation Act, 1950, provides contractual authority for an additional \$100,000 for the development program. Under this authority (and the 1950 supplemental appropriation which will be required to provide the funds), it is planned to construct the center section and one wing of the laboratory building.

To complete the facilities immediately required for the operation of the station, an additional \$100,000 is needed in fiscal year 1951 to provide for the remaining wing of the laboratory building, for a machine service building, and for installation of the remainder of the utilities.

Financial Requirements: The program for the development of the physical facilities at the Southwest Irrigation Field Station is as follows:

<u>Item</u>	<u>1949</u>	<u>1950</u>	<u>1951</u>	<u>Total</u>	
Laboratory building and equipment .....	--	\$100,000	\$ 50,000	\$150,000	1952
Crop service building .....	\$ 41,000	--	--	41,000	175,000
Machine service building ..	--	--	40,000	40,000	
Two residences (for superintendent and farm foreman)	45,500	--	--	45,500	
Preparation of plans and specifications, construction of roads, walks, and sewage disposal system, and other miscellaneous items .....	13,500	--	10,000	23,500	
	<u>100,000</u>	<u>100,000</u>	<u>100,000</u>	<u>300,000</u>	



The laboratory building will provide facilities for the soils and chemistry laboratories; the horticultural and pathology laboratory, and office space for the Station Superintendent and the research scientists. It is expected that there will be numerous visitors to the station who will also use the building's facilities and occasionally hold small group meetings in it. It will be a one-story, fireproof building of reinforced concrete construction suitable for an earthquake country. The center portion and wing to be constructed under the 1950 contract authority will total approximately 3,000 square feet, and the additional wing to be added in 1951 at an estimated cost of \$50,000 will be approximately 1,300 square feet.

The machine service building will provide facilities for the storage and repair of the farm and automotive equipment. The building will be a one-story fireproof structure of reinforced concrete, approximately 120' x 36'. The cost in 1951 is estimated at \$40,000.

The required utilities remaining to be installed in 1951 will consist principally of the sewage disposal system. There will also be some remaining roads and walks to be completed. The cost is estimated at \$10,000.

(5) Increase of \$21,300 to place on a full year basis in 1951 pay adjustments under Public Law 429 which were in effect for only a part of the fiscal year 1950.



# SOILS, FERTILIZERS, AND IRRIGATION

## Alternate Project Statement

Project	1949	1950 Esti- mated	Increase(+) or Decrease(-)	1951 Esti- mated	1951			Grand Total
					Section 10(b)	RMA	Special Research Fund	
1. Soil improvement, manage- ment, and irrigation in- vestigations .....	795,079	906,530	+113,690	1,020,220	161,100	161,100	125,500	1,306,820
2. Fertilizers and their improvement .....	231,393	235,930	+9,560	245,490	-	-	-	245,490
3. Soil classification for crop production .....	896,215	1,063,640	+163,650	1,227,290	-	-	-	1,227,290
4. Construction or Acquisi- tion of buildings, facili- ties, and equipment at new: Southwest Irrigation Field: Station, Brawley, Cali- fornia .....	100,000	100,000	-	100,000	-	-	-	100,000
5. Replacement of worn-out equipment .....	33,000	-	-	-	-	-	-	-
6. Investigations of the re- lations of soils to plant, animal, and human nutri- tion .....	-	-	-	-	-	-	-	-
7. Pay adjustment costs ....	-	[38,600]	[+25,920]	[64,520]	[4,100]	[4,100]	134,600 [8,200]	134,600 [76,820]
Unobligated balance .....	6,434	-	-	-	-	-	-	-
Total available .....	2,062,121	2,306,100	286,900	2,593,000	161,100	161,100	260,100	3,014,200
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture .....	+136	-	-	-	-	-	-	-

Project	1949	1950 Esti- mated	Increase(+) or Decrease(-)	1951 Esti- mated	1951		
					RMA	Section	Special
					10(b)	Total	Fund
							Research
							Total
Transfer in 1950 estimates from:							
"Printing and binding, Department of Agriculture":	-144,657						
"Salaries and expenses, Soil Conservation Service, Soil Conservation Operations .....	-200,700	-205,000					
Anticipated pay adjustment supplemental .....	- -	-35,100					
Anticipated supplemental estimate to construct or acquire buildings, facilities, and equipment for the new Southwest Irrigation Field Station, Brawley, California .....	- -	-100,000					
Total appropriation or estimate .....	1,716,900	1,966,000					

# FMA Projects

Finan- cial Proj. No.	FMA Proj. No.	Project Title	1949	1950 (est.)	Adjust- ments for: 1951 P.L. 429	1951 (est.)
		<u>Section 10(b) Research other than utilization:</u>				
1	72	1/ Toxicological effects of insecticides, fungicides, and herbicides on plants and animals	7,297	20,300	+200	20,500
1	74	Erosion control and stable crop production in Puerto Rico	14,894	20,400	+200	20,600
1	99	The influence of mineral deficiencies in soils, including minor elements on crop yields, compo- sition, and nutritive value and their economic relationships	59,575	68,200	+500	68,700
1	324	Irrigation and soil management studies including drainage, salinity and fertilization	19,792	45,800	+400	46,200
1	537	Investigation on cause, prevention, and control of X-disease of Hyperkeratosis of cattle	- -	5,100	- -	5,100
		Total, RMA	101,558	159,800	+1,300	161,100

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## Special Research Projects

		<u>Laboratories:</u>				
1	3-9	Regional research laboratory for investigations of the relationships to the salinity of irrigation waters, and of soil conditions to plant growth and related factors involved in a permanently success- ful irrigated agriculture	112,375	124,200	+1,300	125,500
6	3-10	Laboratory for research into the relations of soils to plant, animal, and human nutrition	125,424	133,400	+1,200	134,600
		Total, Laboratories	237,799	257,600	+2,500	260,100
1/		See also Fruit, Vegetable, and Specialty Crops.				



CHANGES IN LANGUAGE

The estimates propose the following changes in the language of this item (new language underscored, deleted matter enclosed with brackets):

- For investigations of soil management methods \*\*\*\* [ including not
- 1 to exceed \$16,000 for remodeling two structures at the United States Northern Great Plains Field Station, Mandan, North Dakota, to provide laboratory facilities for investigations on lands to be irrigated under the Missouri Basin development program: Provided, That the Secretary shall have contractual authority in an amount not to exceed \$100,000 to construct or acquire], \$2,593,000, including
  - 2 not to exceed \$100,000 for construction or acquisition of buildings, facilities, and equipment for the station at Brawley, California.

The first change deletes the non-recurring provisions inserted in the 1950 Agricultural Appropriation Act for (a) remodeling two structures at the United States Northern Great Plains Field Station, Mandan, North Dakota, to provide laboratory facilities required for the Missouri River Basin development program, and (b) contractual authority of not to exceed \$100,000 for continuing the construction or acquisition of buildings, facilities, and equipment for the new Southwest Irrigation Field Station, Brawley, California.

The second change inserts language authorizing \$100,000 for the construction or acquisition of buildings, facilities, and equipment for the station at Brawley as provided in the 1951 estimates. The program for the development of the physical facilities involves a total estimated expenditure of \$300,000. Appropriations or contract authorizations totaling \$200,000 have been provided, and the 1951 estimates reflect the remaining \$100,000 required.



## STATUS OF PROGRAM

Current Activities: This appropriation is concerned with research to improve and maintain productivity of the soils of the United States. The work is conducted in three related fields, namely:

1. Soil improvement, management and irrigation investigations. Studies of fertilization, liming, tillage, crop rotation, and other production practices are conducted at 46 field locations in dry-land, humid, and irrigated regions, and are supported by basic laboratory investigations into soil-plant relationships, including studies of tilth, moisture, fertility, and soil organisms.
2. Fertilizers and their improvement. Research is conducted on the chemistry and processes of producing fertilizers, liming materials, and soil amendments to improve their properties, efficiency, and availability to plants. Farmers now use annually approximately 46 million tons of these materials at a retail cost of around 750 million dollars.
3. Soil classification for crop production. Surveys are made to classify soils in a national system, and soil maps and reports are published for use in recommending and applying soil and crop management practices on individual farms and for numerous land-use programs of Federal and State agencies. So far about half of the nation's 3,070 counties have been reported in detail.

Specific objectives of the current program include:

- (a) Increased production of feed crops in the South, especially alfalfa and corn, through better fertilizer practices and cropping systems.
- (b) Improved production of crops under irrigation by fertilization, salinity, and moisture control, and improved crop management practices.
- (c) The development of improved soil management and crop production practices on Bureau of Reclamation projects in the Columbia, Lower Colorado, and Missouri River Basins and other areas in advance of settlement.
- (d) The determination of the effect on the fertility of soils of various crop rotation and production practices which have been continued for 30-40 years at field stations in the Great Plains and other dry-land areas.
- (e) The improvement of methods of production and quality of material of a new nitrogen fertilizer with controlled rate of availability to plants.
- (f) Improvement of mixed fertilizers of higher analysis by granulation to better the properties affecting packaging, storage, and availability of nutrients to plants.



- (g) The better determination of the availability and use of nutrient materials by plants by the use of radio-active materials.
- (h) The determination of the rate at which potash in different soils becomes available to crops.
- (i) The selection of more efficient strains of legume bacteria for use in inoculating important hay and green manuring crops.
- (j) Completion of field work in soil classification at a rate of at least 20 counties a year and prompt publication of the maps and reports.

The research program is closely integrated with the soils work of State agricultural experiment stations through (1) four Regional Soil Research Committees, (2) collaborators from the four Land Grant College Regions, and (3) a National Soils and Fertilizer Research Committee. It is coordinated with the research of the Soil Conservation Service and the two programs together constitute the Department's research program in soil and water management and conservation. There is also cooperation with other Federal agencies including the Production and Marketing Administration, Bureau of Reclamation, and Tennessee Valley Authority. Such integration and cooperation facilitates effective planning and research on the most urgent problems. The work consists largely of field experiments and field mapping, laboratory and greenhouse investigations, and drafting and publishing soil maps and reports. It is complicated by the wide range of climatic and soil conditions in the United States. Results of the work are made available to farmers, scientific workers, and others through the Federal-State extension services, the soil conservation and agricultural conservation programs of the Department as well as publications, the agricultural press, and correspondence.

#### Examples of Recent Progress:

1. Soil management research for corn production in the South pays off. Corn yields have been more than tripled in cooperative experiments conducted in North Carolina. In 49 experiments, over a five-year period, optimum combinations of fertilization, cultivation, plant population and varieties have boosted average yields from 28 to 81 bushels per acre. Since 1944, when this project was initiated, similar experiments have been conducted in all southeastern States. More than 50,000 farmers tried these new methods in corn production demonstrations in cooperation with the Extension Service in 1948 and produced yields that average more than 65 bushels per acre. Average corn yields for all farmers in 7 southeastern states have increased 50 per cent in 5 years -- from 16 bushels before 1944 to 25 bushels in 1948.
2. Salt balance studied in western irrigated areas. Records in the Sutter Basin, California, indicate that the discharge of soluble salts in drainage water far exceeds that brought in by irrigation waters. This indicates that serious salinity or alkalinity

problems should not develop in this District if reasonably sound water and soil management practices are followed. Studies of a similar nature are in progress on other irrigation districts.

3. Techniques devised for the preparation and handling of radioactive phosphates. These materials provide an extremely useful new tool in tracer studies of the utilization by plants of fertilizer applications. Methods were devised during the past year for preparing radioactive double super-phosphate and monoammonium phosphate, bringing to seven the number of such radioactive materials. The other five materials are superphosphate, ammoniated superphosphate, dicalcium phosphate, alpha tricalcium phosphate, and calcium metaphosphate glass. The total radioactive materials prepared during 1949 was equivalent to 1350 pounds of standard superphosphate.
4. Sugar beet yields greatly increased by improved soil and water management practices in the irrigated West. In the past, the sugar beet crop was not considered sensitive to changes in soil water supply. Studies have shown, however, that yields were increased from 16 tons to over 29 tons per acre by the combination of optimum irrigation, cultural and fertilization practices. They also demonstrate that irrigation schedules should be modified to keep the plants growing vigorously early in the season, and the irrigation water held back later in the season to increase the sugar content. The total amount of irrigation water required to produce a crop may be of less importance than the time at which the water is applied.
5. Urea-form being evaluated in greenhouse and field tests. This new fertilizer material being developed by the Bureau, can be manufactured with varying degrees of solubility so that nitrogen is released to the soil at controlled rates as required by growing plants. At present all chemical nitrogen fertilizers are easily soluble in water, so that all of the nitrogen is immediately available, but then begins to leach away. Greenhouse studies with perennial ryegrass have confirmed the predicted controlled rates of availability of the nitrogen content of urea-form preparations. Results from field tests on turf and pasture, however, were variable. The different soils on which the tests were conducted are being examined to determine the reason for the variations. About 1,400 pounds of urea-form materials were prepared for 1949 field evaluation on turf, pasture, tobacco, citrus, sugarcane, cranberries, and corn.
6. Soil survey field work is being carried on in 32 states. Detailed soil surveys of about 4,277,000 acres were completed during the year.
7. Emphasis has been placed on the preparation and completion of soil maps and reports on which field work has been completed. In fiscal year 1949, seven reports were published, bringing to 1,580 the total number published. There are 35 reports at

the Government Printing Office and 56 reports are being prepared for publication.

8. Special studies were carried on cooperatively with other agencies to identify and classify soils in advance of detailed soil mapping to provide guidance in the fields of soil conservation and sustained food production. Special soil surveys of several proposed irrigation projects were undertaken to provide data needed in classifying land for irrigation.



1-20-50

(e) Agricultural Engineering

Appropriation Act, 1950.....	\$724,000
Anticipated pay adjustment supplemental.....	11,200
Activities transferred in 1951 Estimates from "Salaries and Expenses, Farm Housing, Department of Agriculture," for farm housing research and technical studies.....	50,600
Base for 1951.....	785,800
Budget Estimate 1951.....	976,000
Increase.....	+190,200

SUMMARY OF INCREASES, 1951

To accelerate the development of plans and specifications for farm houses and farm buildings in the low-cost range, and to conduct research on methods of reducing costs of construction on the farm as an integral part of the farm housing program.....	+145,000
To strengthen research in farm electrification.....	+ 40,000
To place on a full-year basis in 1951 pay adjustments under P. L. 429 which were in effect for only a part of fiscal year 1950.....	+ 5,200

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950 (estimated)	Increase		1951 (estimated)
			P. L. 429 adjustment	Other	
1. Farm machinery....	\$246,909	\$249,580	+1,530	--	\$251,110
2. Farm structures and related investigations....	176,465	226,090	+1,680	+145,000(1)	372,770
3. Mechanical processing of farm products.....	175,694	178,930	+1,180	--	180,110
4. Farm electrification investigations.....	103,912	131,200	+810	+40,000(2)	172,010
5. Replacement of worn-out equipment	16,310	--	--	--	--
Total pay adjustment costs, P. L. 429....	--	[11,800]	[+5,200]	[+5,710]	[22,710]
Unobligated balance...	8,057	--	--	--	--
Total available.....	727,347	785,800	5,200(3)	+185,000	976,000

Project	1949	1950 (estimated)	Increase		1951 (estimated)
			P. L. 429, adjustment	Other	
Transfer to "Salaries and expenses, Office of Information, Department of Agriculture".....	+167	--			
Transfer in 1950 estimates from "Printing and binding, Department of Agriculture".	-6,324	--			
Transfer in 1951 estimates from "Salaries and expenses, Farm Housing, Department of Agriculture".....	--	-50,600			
Anticipated pay adjustment supplemental....	--	-11,200			
Total appropriation or estimate.	721,190	724,000			

#### INCREASES

The increase of \$190,200 for 1951 is composed of the following items:

(1) Increase of \$145,000 under project 2 to accelerate the development of plans and specifications for farm houses and farm buildings in the low cost range, and to conduct research on methods of reducing costs of construction on the farm as an integral part of the farm housing program.

Need for Increase: Section 506 (a) of the Housing Act of 1949 authorizes the Secretary to require that all new buildings and repairs financed under the Farm Housing Title "shall be substantially constructed and in accordance with such building plans and specifications as may be required by the Secretary"; to furnish to any person without charge, or at such charges as he may determine, "technical services such as building plans, specifications, construction supervision and inspection, and advice and information regarding farm dwellings and other buildings"; and "to conduct research and technical studies including the development, demonstration, and promotion of construction of adequate farm dwellings and other buildings for the purposes of stimulating construction, improving the architectural design and utility of such dwellings and buildings, utilizing new and native materials, economies in materials and construction methods, new methods of production, distribution, assembly, and construction, with a view to reducing the cost



of farm dwellings and buildings and adapting and developing fixtures and appurtenances for more efficient and economical farm use."

This bureau's farm housing research work authorized by the Housing Act of 1949 was initiated in fiscal year 1950 with an allotment of \$50,000 provided from funds appropriated in the Supplemental Appropriation Act, 1950, approved October 14, 1949. Because of the urgent need, the initial funds are being used for the preparation of plans and specifications for farm houses and farm buildings in the low cost range. Selected State agricultural colleges are assisting in their preparation.

Size of Problem: The total estimated present value of farm buildings is about 20 billion dollars, of which farm houses account for about 10 billion dollars. Information developed by the Bureau of Agricultural Economics in April, 1948, showed that in 1947 there was building activity on 41 percent of our 6 million farms; that new houses were under construction on 240,000 farms; existing houses were repaired or remodeled on nearly  $1\frac{1}{2}$  million farms; new buildings other than houses were under construction on about 800,000 farms; and existing structures other than houses were repaired or remodeled on about 900,000 farms. The expenditures for farm building construction, including farm houses, are well above \$1,000,000,000 per year.

The impetus to farm construction given by the Housing Act of 1949 makes it imperative that the variety of plans available through the Department and the State agricultural colleges be greatly increased to provide a range of building plans and specifications suitable for all sections of the country to meet the variations in climate, topography, customs and availability of materials. The number of farm house plans available in the low cost range is limited. The majority of stock plans now available through commercial sources have been designed for urban use and are not suitable for farm houses because of important differences between farm and urban housing requirements. Of the plans prepared specifically for farm use, a large percentage were designed for farmers in the middle income brackets. To a much greater degree than the urban home, the farm dwelling must be planned to permit expansion or rearrangement of facilities at a minimum cost to meet changing needs throughout the family life cycle, since farmers can not conveniently move to a new home without changing farms.

Other farm buildings constructed should meet the particular type of farming carried on and should be geared to the farm's productive capacity. Building plans and specifications made available by material suppliers and builders generally do not take into consideration these needs and other factors such as native building materials, and others.

Research on construction materials and methods is needed to reduce costs of farm housing and other farm buildings. It is anticipated that by the use of native materials, family labor, tractor power, and farm machinery, the cash outlay for building may be reduced by more than 50%. Research on such methods should be conducted and the results made available and incorporated in building plans so that farmers can take full advantage of such savings.

The funds available in 1950 are insufficient to provide within a reasonable time the large number of plans needed to service the loan and technical assistance programs and do not provide for the research needed to reduce costs of construction.



## Plan of Work:

Plans and Specifications.-Farm house and farm building plans for the various regions of the country will be developed in cooperation with the Bureau of Human Nutrition and Home Economics, the Farmers Home Administration, the Extension Service, and the state experiment stations. Farmhouse plans will incorporate the findings of a field study of farm family housing requirements now being conducted by the Bureau of Human Nutrition and Home Economics in cooperation with the State agricultural experiment stations. Part of the work of preparing the plans and specifications for all types of buildings will be carried on at selected State agricultural colleges in the areas to be served. All plans will incorporate available research findings, and will be as simple as possible in construction and have provision for later additions. Where practicable, they will provide for multiple use of space for various activities throughout the year.

Reducing Costs of Construction.-Reducing costs of construction would be approached by developing the possibilities of standardized building types and construction, adopting progress in dimensional coordination of building materials and parts to farm building practices, and finding ways for farmers to make further and more effective use of their non-cash assets, such as native materials and farm labor, power and machinery.

Some farmers do a good deal of their own building and many others have an appreciable number of days throughout the year which are not devoted full time to farming activities. Use of this time for preparation of material and construction and improvement of buildings could do much to reduce the cost of improving living and working conditions on their farms. Illustrated instructions would be prepared to assist them in doing a good job of building. Opportunities to further reduce costs through use of tractors, motors, and other farm machinery to reduce manual labor in construction buildings would be studied. In areas where the self-help plan of building with native materials has been tried, the sale of commercial materials by local dealers has increased.

(2) Increase of \$40,000 under project 4 to strengthen research in farm electrification.

Need for Increase: The number of farms served by electricity is increasing rapidly. During the past three years, electric lines have been extended to one-fourth of the farms of the United States by Rural Electrification Administration cooperatives and the private utility companies. About 78 percent of American farms now have central station electric service. Construction of lines to the remaining 22 percent of our farms is continuing at a rapid pace.

Although farm operations offer the greater potential use of electricity, the major portion of electrical use on farms is still in the household. The reason is that electrical household equipment designed for urban use can be readily applied to the farm household. Electrical equipment available from industry, however, generally must be adapted and modified to be suitable for farm operations, or new electrical equipment must be developed for specific farm uses.

Research is needed to adapt and develop electrical equipment for the farm so as to reduce farm labor requirements and gain the full advantages of the services which electricity can render to farmers. Present research funds are insufficient to investigate, at the rate needed, many of the potential uses of electricity on farms.

The great demand for additional farm electrification research has been repeatedly demonstrated through the requests of farm organizations, rural electric cooperative associations, power suppliers, and others. The use of more electric energy by the farmer not only will benefit him but will also better protect the Government's large investments in rural electrification loans.

Plan of Work: The increases would be used to initiate or strengthen cooperative investigations with State experiment stations, and other agencies in the development and adaptation of electrical equipment to various farm uses, particularly.

Insect Control by Electricity.- Limited studies conducted recently in cooperation with the Indiana and Iowa experiment stations have indicated that electric lamps and grid-traps may become effective in controlling night-flying moths of the European corn borer, corn earworm, tomato and tobacco hornworms, and other insect pests. These pests cause damage estimated in the hundreds of million dollars annually. In preliminary tests in 1949 in sweet corn fields in Iowa, corn borer moths were attracted in greater numbers than the presently developed traps could destroy but were killed in sufficient quantities to effect considerable reduction in borer infestation. In Indiana, there was 69% reduction in borer infestation up to 90 feet from the traps and 57% reduction up to 160 feet. Canning companies and farmers have become greatly interested in this development.

Losses from corn earworm and tobacco hornworm are especially large in the South. Initial tests in 1949 in North Carolina with the tobacco hornworm moth, in cooperation with the Bureau of Entomology and Plant Quarantine, show that the moth can be attracted in large numbers but that a different electric grid-trap is required because of the moth's size. The corn earworm also causes heavy damage not only to corn but also cotton, tobacco, tomatoes, and other crops. Investigations would be expanded to develop and test improved traps of the various types needed which could destroy the moths of these two insects in great numbers. The work would be conducted at two locations in the South.

Reducing Farm-chore Labor with Electrical Equipment. Studies of the use of electrical controls and time clocks to provide automatic operation of equipment around the farmstead, such as water pumps, feed grinders and mixers, bin-filling mechanisms, poultry feeders, etc., would be expanded. Investigations of electrical equipment to reduce chore labor were initiated in fiscal year 1950 with the Illinois Agricultural Experiment Station, but the field is broad and other State experiment stations including New York and Michigan are requesting cooperation in such research. The investigations would include research on the greater use of portable or movable electric motors for farm operations not readily performed with stationary power motors.



Electric Lighting of Farm Buildings and Feed Lots.-State experiment stations in Texas and Indiana have requested technical engineering assistance with lighting problems in dairy and other farm buildings, where better visibility for milking and farm chores is desired, and in connection with the night lighting of feed lots which has been found to have possibilities for increasing meat production. The establishment of standards and guides for use by farmers for such installation is needed. The increase would permit the Bureau to undertake in cooperation with the livestock specialists, investigations of light intensity, types of lamps, installations, and related lighting problems for such uses.

(3) Increase of \$5,200 to place on a full-year basis in 1951 pay adjustments under Public Law 429 which were in effect for only a part of the fiscal year 1950.



# AGRICULTURAL ENGINEERING

## Alternate Project Statement

Project	1949	1950	Increase (+) or Decrease (-)	1951	1951			Grand Total
					Estimated	Section:	Special:	
		Estimated			10(a)	10(b)	Research:	
							Fund	
1. Farm machinery .....	246,909	249,580	+1,530	251,110	-	138,400	138,400	389,510
2. Farm structures and related investigations	176,465	226,000	+146,680	372,770	-	34,900	34,900	407,670
3. Mechanical processing of farm products .....	175,694	178,930	+1,180	180,110	107,200	-	107,200	287,310
4. Farm electrification investigations .....	103,912	131,200	+40,810	172,010	49,100	33,800	82,900	265,010
5. Replacement of worn- out equipment .....	16,310	-	-	-	-	-	-	-
6. Pay adjustment costs	-	[11,800]	[+10,910]	[22,710]	[3,800]	[5,100]	[8,900]	[31,710]
Unobligated balance .....	8,057	-	-	-	-	-	-	-
Total available .....	727,347	785,800	+190,200	976,000	156,300	207,100	363,400	1,349,500
Transfer to "Salaries and expenses, Office of In- formation, Department of Agriculture" .....	+167	-	-	-	-	-	-	-
Transfer in 1950 esti- mates from: "Printing and binding, Department of Agri- culture" .....	-6,324	-	-	-	-	-	-	-
Transfer in 1951 esti- mates from "Salaries and expenses, Farm Housing, Department of Agriculture" .....	-	-50,600	-	-	-	-	-	-
Anticipated pay adjust- ment supplemental .....	-	-11,200	-	-	-	-	-	-
Total appropriation or estimate .....	721,190	724,000	-	-	-	-	-	-

# RMA Projects

Finan- cial : RMA Proj. : Proj. No. : No. :	Project Title	1949	1950 (est.)	Adjustments for 1951	1951 (est.)
	Section 10(a) Utilization research:				
4	Improvement of wood-burning equipment and structures for fire-cured tobacco (cooperative with Forest Service)	10,100	10,100	+100	10,200
3	Developing improved equipment and techniques for ginning and associated processes to minimize losses and increase salability of cotton and cottonseed	273,460	120,700	+1,000	107,200
4	Determination of requirements and development of plans and specifications of facilities for freezing and storing perishable foods on farms for marketing and home consumption	14,635	20,300	+200	20,500
4	Egg candling; estimation of interior egg quality in the intact hen's egg in relation to grade standards	18,300	18,300	+100	18,400
	Total, Section 10(a)	288,095	169,400	+1,400	156,300
	Section 10(b) Research other than utilization:				
1	Develop efficient equipment for mechanizing cotton production, especially on small farms, including defoliation equipment and methods	56,594	76,200	+700	76,900
1	Establish a cooperative national research program to develop practical methods and equipment for weed control	12,712	25,400	+200	25,600
1/ See also Field Crops.					

# RMA Projects

Finan- cial : RMA :	Project Title	1949 :	1950 :	Adjustments for 1951 :
Proj. : Proj. :		(est.) :		
No. : No. :		P.L.429:Contract:	Other :	1951 (est.)
	(Cont.)			
1	Section 10(b)Research other than utilization: Develop and improve equipment and companion for-- mulations for effective application of insecti- cides and fungicides .....	17,912:	35,600:	+300: -- : 35,900
2	Functional requirements, materials and methods of construction, and economics of farm service buildings .....	29,899:	31,500:	+300: -- : 31,800
4	Factors affecting electric power consumption on farms .....	-- :	13,200:	+100: -- : 13,300
4	Develop improved structures and equipment for brightleaf tobacco curing and processing for market .....	20,072:	20,300:	+200: -- : 20,500
2	Regional marketing research on potatoes .....	2,604:	3,100:	*: -- : 3,100
	Total, Section 10(b) .....	139,793:	205,300:	+1,800: -- : 207,100
	Total, RMA .....	427,888:	374,700:	+3,200:-15,000 : +500 : 363,400

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## Special Research Projects

2	Investigations on storage of soybeans on the farm:	11,850:	-- :	-- :
3	Extraction of foreign material from cotton lint at gins .....	18,200:	-- :	-- :
4	Research on the use of infra-red and high- frequency heating and other applications of electric energy to drying or conditioning farm commodities .....	-- :	10,100:	-- : 10,100
	Total, Special Research Fund .....	30,050:	10,100:	-- : 10,100

2/ See also Fruit, Vegetable, and Specialty Crops.



Agricultural Engineering

(a) An adjustment within available funds to provide an additional \$500 under project 71, "Developing improved equipment and techniques for ginning and associated processes to minimize losses and increase salability of cotton and cottonseed" to provide for a small increase in operating funds.

This small increase of \$500 will provide additional operating funds needed for this project which is concerned primarily with investigations at the new cotton ginning laboratory at Mesilla Park, New Mexico.

## STATUS OF PROGRAM

Objectives and current activities: Agricultural engineering research deals with machines, materials, methods, structures, power and labor in farming, farm storage, processing, and related activities. The broad objectives of the research program are to develop more efficient farming operations, reduce farm labor requirements, improve the condition and quality of farm products, and promote better farm living and working conditions. Attainment of these objectives is sought through research in four major fields:

- (a) Farm machinery investigations are concerned with the improvement of farm machinery, equipment, and mechanical methods of planting, cultivating, fertilizing, and harvesting farm crops and combating their insect pests and diseases.
- (b) Farm structures and related investigations undertake the development of more effective barns and animal shelters, better structures for storing crops on the farm, and improved design and utility of farm houses, including preparation of plans and specifications to carry out the purposes of the Housing Act of 1949. The farm investment in buildings, including houses, is approximately 20 billion dollars. These structures shelter much of the livestock and part-year storage for most of the grain, feed and perishable crops. Farm building construction was curtailed materially during and immediately following the war. One of the objectives of crop storage research is to provide the grower with facilities so he can utilize or sell his crops at his convenience rather than selling them on a flooded market at harvest time.
- (c) Mechanical processing of farm products concerns the improvement of equipment and methods for handling and processing products on the farm or at local processing plants.
- (d) Farm electrification investigations include the application of electrical energy in the form of power, heat, light and other forms of electromagnetic radiation as an aid in the production and processing of agricultural products. The number of farms served by rural electric lines in the United States has nearly trebled in the past ten years, increasing from 1,406,500 farms in 1938 to more than 4½ million in 1949, and is now 78% of all farms. This expansion of electric service has exceeded the income-producing application of electric energy.

These investigations are conducted in the field and in laboratories at locations convenient to the particular problems under investigation. The work is usually in cooperation with State agricultural experiment stations, various Federal agencies, commercial suppliers of services and equipment, and others.

Farmers have received great benefits from engineering research applied to agriculture. In the past 10 years, they have changed from hand methods and animal power to machines more rapidly than in any other

decade in history. They are using more than twice as many tractors as in 1939. Mechanization is far advanced in several crops, such as small grains and corn, but 90% of the cotton crop is still harvested by hand and some other crops still require almost as many man-hours of labor per acre as they did years ago.

Examples of Recent Progress: The following examples illustrate accomplishments in this field during the past year:

1. Mechanical detrashing of sugarcane holds promise. An experimental sugarcane harvester is being developed which will reduce the man-hour requirements for harvesting the crop by at least 30 per cent and will deliver cane free of tops, trash, and mud. Some 32 per cent of whole cane as now harvested is trash and approximately 15 per cent more sucrose may be recovered from clean cane than from trashy cane. Laboratory tests show that about 30 per cent of total trash can be removed by average topping without loss of recoverable sucrose. The remaining trash can be removed by the cylinders of the experimental sugarcane harvester.
2. Mechanized-peanut harvesting can reduce labor requirements by 60 to 80 per cent. Studies in harvesting peanuts in the Georgia-Alabama area indicated they can be combined from the windrow, placed directly in storage if moisture content does not exceed 15 per cent, and dried with suitable equipment. The man-hour requirements for harvesting the crop are thereby reduced from approximately 25 to about 4.
3. Drawings for 30 typical farm-type storage structures for ear corn and small grain were prepared and incorporated into the Midwest Plan Service in a special project to assist the FIA in their program to get this year's big grain crop under cover. These designs cover a range of sizes and types from a 300 bushel hog self-feeder to a 10,000 bushel farm granary and embody the accumulated results of the Bureau's research in this field. Several of the plans are drawn to facilitate ready conversion to poultry or hog houses, garages, implement sheds or other types of service buildings when not needed for grain storage.
4. The regional farm building Plan Exchange Service (cooperatively conducted by the Department and the State agricultural colleges) has developed new or revised drawings for 102 typical farm buildings in an appropriate range of types and sizes, including 21 for farmhouses for the Northeast region. The farmhouse plans, developed cooperatively with the Bureau of Human Nutrition and Home Economics, are illustrated and described in a catalog-type bulletin published during the past year. A start was made on preparing drawings for a group of 30 farmhouse plans for inclusion in a revision of the plan service for the Southern region.
5. At the Psychoenergetic Laboratory at Columbia, Missouri tests are being conducted in cooperation with the Missouri Agricultural Experiment Station to obtain basic heat and moisture production data needed for the engineering design of dairy housing



structures. The laboratory is essentially a controlled condition stable in which matched pairs of cows are kept in separate rooms. One room is carried through a range of environmental conditions and the other held constant as a check. Milk production, heat and moisture production, weight losses and gains, feed and water consumption and other factors are measured at the different environments and correlated. Preliminary results show that small (Jersey) cows are more tolerant to high temperatures than are large (Holstein) cows.

6. Green boll separator in certain types of cotton cleaning equipment improves results from cotton harvested by strippers. Cotton strippers are used primarily in the western part of the Cotton Belt for harvesting cotton of all maturities in a single operation. Immature cotton from the green bolls gathered by the stripper is one of the causes of neps (small clumps of knotted fibers) which can be removed only with great difficulty in the further processing of the lint. The green boll separator which has been developed removed 90 to 95 per cent of the green bolls together with other foreign material. This has improved both the grade of cotton on which the farmer is paid and the quality of the cotton product. Designs which will adapt the device to all types of cotton cleaning equipment are being prepared.
7. New stick-remover attachment designed for cotton cleaning machinery. A more effective machine, on a new principle, designed for use on seed cotton cleaning and extracting machines, eliminates frequent shut-downs caused by sticks in roughly-harvested cotton. Application is being made for public patent. The device can be readily installed on existing units at moderate cost.
8. Greater egg production with bactericidal radiation. In tests, cooperative with the Bureau of Animal Industry, pullets receiving ultraviolet radiation laid 8.6 per cent more eggs in a 273-day period than pullets receiving no radiation. Effects of variations in intensity and length of exposure remain to be determined.
9. Agricultural applications of ultrasonic energy initially explored. Mosquito larvae were killed within 5 seconds in water, but larvae of codling moth required 1 minute exposure to 400-kilocycle waves with an estimated 300-watt energy. Ultrasonics does not appear to be suitable for sterilization of citrus fruits. DDT particles can be reduced to smaller size by ultrasonic vibration than by other known methods thereby providing a better water suspension mixture for more effective application.
10. Corn borer reduction most effective with ground sprayers. Comparative field scale insecticide application tests for controlling the European corn borer in field corn in Iowa last year, conducted in cooperation with the Bureau of Entomology and Plant Quarantine, indicated best control (90 per cent borer reduction in plants) with spraying from ground machines, following which in effectiveness were ground dusting, airplane spraying and airplane dusting (about 50 per cent borer reduction in plants). This indicates the

need of further work on pest control equipment, especially for airplanes which permit rapid application of pesticides.

11. Light traps. Corn borer moths were attracted to and killed prior to laying eggs more readily by lamp traps of near ultra-violet radiation than by lamps of other radiation. Further study on grid trap design, intensity of radiation and lamp arrangement may provide an important factor in corn borer control. Several other insect pests, which are night flying, are readily attracted to varying intensities of the "black light."
12. A feeder table mechanism has been developed which evens the fiber flax straw in the scutching operation and thereby results in a savings of at least \$10.00 per ton of retted straw. The scutching operation separates the flax fiber from the straw.
13. Use of ramie root stock cutter and planting equipment may reduce the cost of transplanting the crop by approximately \$50.00 per acre.

(f) National Arboretum

Appropriation Act, 1950 .....	\$170,000
Anticipated pay adjustment supplemental .....	3,200
Base for 1951 .....	<u>173,200</u>
Budget Estimate, 1951 .....	<u>152,700</u>
Decrease .....	<u><u>-20,500</u></u>

SUMMARY OF INCREASES AND DECREASES, 1951

Decrease in the program for the development of physical facilities .....	-22,000
Increase to place on a full-year basis in 1951, pay adjustments under Public Law 429 which were in effect for only a part of fiscal year 1950 .....	+1,500

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950 :(estimated):	Increase or decrease		1951 :(estimated)
			P. L. 429 : adjustment:	Other	
1. Operation and maintenance ..	\$95,170	\$103,200	+\$1,500	--	104,700
2. Development of physical facilities ...	327,449	70,000	--	-22,000(1)	48,000
Total pay adjustment costs, Public Law 429 ..	--	[3,200]	[+1,500]	--	[4,700]
Unobligated balance .....	1,281	--	--	--	--
Total available or estimate ...	423,900	173,200	+1,500(2)	-22,000	152,700
Anticipated pay adjustment supplemental ..	--	-3,200	:	:	:
Total appropriation or estimate .....	423,900	170,000	:	:	:

INCREASES AND DECREASES

The net decrease of \$20,500 for 1951 is composed of the following:

- (1) Decrease of \$22,000 in the program for the development of physical facilities.

Status of Development Program: The development program of the National Arboretum was formulated in collaboration with the National Arboretum



Advisory Council. Appropriations for carrying out a part of the program have been provided as follows:

<u>Fiscal Year</u>	<u>Amount</u>	<u>Purpose</u>
1948	\$350,000	Acquisition of land needed to round out natural boundaries.
1949	151,000	Preparation of plans and specifications.
	20,000	Construction of entrance facilities.
	83,500	Construction of a portion of the roads.
	48,500	Construction of a portion of the utilities.
	25,000	Purchase of equipment.
	<u>328,000</u>	
1950	15,000	Construction of a farm machinery and shop building.
	15,000	Continue installation of utilities.
	40,000	Fencing, grading, repairs and miscellaneous.
	<u>70,000</u>	

Development in 1951, at an estimated cost of \$48,000, would be limited to (a) small amount of road work and the development of some paths and trails, (b) continued installation of water and electric utilities, and (c) dismantling or moving of temporary buildings and other miscellaneous development work. The estimated cost of these items follows:

	<u>Estimated Cost</u>
(a) Continued construction of roads, and developing initial portion of footpaths and trails .....	\$28,000

The 1949 appropriation provided \$83,500 for the initial portion of the roads to be constructed. With the completion of this first part of the road system it will be necessary to make certain changes in the old roads to conform to the new arrangement. This will involve abandonment of some roads and the construction of new connecting links at an estimated cost of \$23,000. The initial portion of the proposed development of 9 miles of footpaths and trails are needed in order to provide access to the plant materials now in place. The cost is estimated at \$5,000.

(b) Continued installation of water supply, drainage, sewage facilities and electric power lines .....	15,000
--	--------

Major emphasis will be on the extension of water mains to areas not served by the present system. Some additional electric power lines will be required in connection with the relocation of existing temporary structures.

- (c) Dismantling or moving temporary buildings and other miscellaneous developmental work ..... 5,000

With the establishment of the farm machinery and shop building, the construction of the gate house and the moving and rehabilitating of two residences, certain temporary buildings are no longer required and should be dismantled or moved to new locations in keeping with the approved site plan.

Exhibit I summarizes the long-term development program for the National Arboretum.

- (2) Increase of \$1,500 to place on a full-year basis in 1951 pay adjustments under Public Law 429 which were in effect for only a part of the fiscal year 1950.

# EXHIBIT 1

## PLAN FOR DEVELOPMENT OF NATIONAL ARBORETUM (AS OF DECEMBER 1949)

The plan for the development of the National Arboretum as worked out in collaboration with the National Arboretum Advisory Council with revisions to reflect (1) the 1951 Budget Estimates and (2) current estimates of cost is as follows:

	1951 Budget			
	1948 - 1950	Estimates	1952	1953
Acquisition of additional land ....	\$350,000	--	--	Total
Preparation of plans and specifications .....	151,000	--	--	\$ 350,000
Buildings .....	35,000	--	--	151,000
Roads .....	83,500	\$28,000	\$922,000	1,240,000
Utilities .....	63,500	15,000	185,000	517,000
Equipment .....	25,000	--	25,000	108,500
Fencing, grading, and repairs .....	40,000	5,000	--	25,000
				45,000
	\$748,000	\$48,000	\$1,132,000	\$2,436,500

The detailed estimates of the development program by fiscal years are as follows:

	1948	1949	1950	1951	1952	1953	Total
Acquisition of additional land .....	\$350,000	--	--	--	--	--	\$ 350,000
Preparation of plans for buildings, roads, and other facilities .....	--	\$151,000	--	--	--	--	151,000



	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>Total</u>
<u>Buildings:</u>							
Headquarters office and laboratory buildings providing rooms for an herbarium, library, study, group meetings, exhibits, and offices, and designed for future extensions ....	--	--	--	--	\$ 900,000	--	900,000
Greenhouse facilities .....	--	--	--	--	--	\$245,000	245,000
Residences (2):							
Superintendent's residence	--	--	--	--	--	22,000	22,000
Propagator's residence ...	--	--	--	--	--	16,000	16,000
Entrance facilities (guardhouse, rest rooms, gates, etc.) .....							
	--	20,000	--	--	--	--	20,000
Service buildings:							
Motor vehicle building ...	--	--	--	--	22,000	--	22,000
Farm machinery and shop building .....	--	--	15,000	--	--	--	15,000
Total, buildings .....							\$1,240,000
<u>Roads:</u>							
7.5 miles of roads .....	--	83,500	--	23,000	170,000	173,500	450,000
9 miles of footpaths and trails .....	--	--	--	5,000	15,000	47,000	67,000
Total, Roads .....							\$ 517,000
<u>Utilities:</u>							
Water supply, drainage, and sewage .....	--	45,000	15,000	10,000	6,000	--	75,000
Electric power lines .....	--	3,500	--	5,000	20,000	5,000	33,500
Total, utilities .....							\$ 108,500
Equipment .....	--	25,000	--	--	--	--	25,000

	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>Total</u>
Fencing, grading, repairs, and miscellaneous .....	--	--	40,000	5,000	--	--	45,000
Total, physical facilities and land .....	\$350,000	\$328,000	\$70,000	\$48,000	\$1,132,000	\$508,500	\$2,436,500

Note: The total revised estimated cost of development of \$2,436,500 is \$158,000 less than previous estimate submitted with the 1950 Budget Estimates due to revision reflecting current cost factors.

CHANGE IN LANGUAGE

The estimates include a proposed change in the language of this item as follows (deleted matter enclosed in brackets):

For the maintenance and development of the National Arboretum ....  
[170,000, of which not to exceed \$15,000 shall be available for  
the construction of a farm machinery storage and shop building]  
\$152,700.

This change deletes the non-recurring provision inserted in the 1950 Agricultural Appropriation Act for the construction of a farm machinery storage and shop building.





## STATUS OF PROGRAM

Authorization: The National Arboretum was established pursuant to the authorization contained in the Act of March 4, 1927 (20 U. S. C. 191-194). It is located in the District of Columbia and bounded approximately by H and R Streets, N. E., Bladensburg Road, and the Anacostia River. An advisory council, appointed by the Secretary of Agriculture assists in planning the development of the Arboretum.

Purpose: The essential purpose of the Arboretum is the development of a living collection of all woody plants that can be grown in this area to serve as a source of plant materials and educational information concerning plant life not only for students and scientists throughout this country but also for visiting scientists from all over the world. Such a collection of plant life gathered from all corners of the world would provide valuable material for breeding with native species to develop improved strains of trees, shrubs, and flowers adapted for special purposes such as city parks, boulevards and streets, and forests.

Development Plans: The Arboretum now consists of approximately 400 acres. Present improvements include several temporary wooden buildings for housing equipment, four small temporary propagation greenhouses, and a well planned, but only partially developed road and drainage system. A substantial amount of basic developmental work has been done, including the clearing of land, making of soil surveys, and the collection of information on species of trees and shrubs adapted to the climate of the area. In recent years, plant materials have been transplanted from nurseries to permanent planting sites, but there is still a large amount being maintained in nurseries awaiting transplanting.

A program for the long-term development of the physical facilities at the National Arboretum has been developed in cooperation with the National Arboretum Advisory Council. Pursuant to this plan, funds have been provided as follows:

<u>Fiscal Year</u>	<u>Amount</u>	<u>Purpose</u>
1948	\$350,000	Acquisition of land needed to round out natural boundaries.
1949	328,000	Preparation of plans and specifications for development program, including roads, buildings, and other facilities; construction of a gate house with rest rooms; and of a small portion of the roads and utilities.
1950	70,000	Construction of farm machinery and shop building, grading, fencing, and miscellaneous development work.

Completion of the program set forth in the plans will require (a) the erection of an administration building to provide adequate facilities for an herbarium collection, library, study cubicles, group meetings, as well as offices, (b) the erection of greenhouse facilities for growing collections of plants not hardy enough to be grown out-of-doors in this climate and for propagating plant materials for use in the Arboretum, also a motor vehicle service building and residences for the superintendent and propagator, and (c) the installation of roads and utilities adequate for great numbers of anticipated visitors to the Arboretum.

Current Activities: During the fiscal year 1949, the activities of the National Arboretum were concerned with (1) the program for the development of physical facilities, and (2) the operation and maintenance of the Arboretum.

Program for Development of Physical Facilities: A master plan indicating the location of roads, buildings, and utilities and detailed plans of the Headquarters building were prepared by the Public Buildings Administration and have been approved. The construction of approximately 1½ miles of permanent hard surfaced roads was completed in November, 1949. Over 13,000 feet of water mains have been installed, providing a system which will serve about two-thirds of the Arboretum area. The construction of a gate house with rest rooms for the public will be completed during fiscal year 1950. An old pottery plant and school building, located on the land acquired in fiscal year 1948 and of no value to the Arboretum, were dismantled.

Operation and Maintenance: In addition to usual maintenance of the 400 acre area, large quantities of plants from the nurseries were moved into permanent locations. The azalea planting was expanded. A large planting of oaks was made. The holly, magnolia, maple, juniper and conifer plantings were augmented with additional species and varieties. A valley leading up from the Anacostia River was planted with Cryptomerias, a special gift from the Garden Club of America. Additional areas of land were cleared of native brush in preparation for another extensive planting program next season.

Gates to the Arboretum were open during four week ends during the azaleas flowering season, and without making public announcement, 920 vehicles containing 3,500 persons visited the Arboretum. This indication of interest in the Arboretum emphasizes its potential usefulness when completed.

In the Herbarium, about 9,000 items were acquired, bringing the total named plant collection to 320,000.



# Functional Summary of RMA Projects Carried Out Under Title II

Functional Classification	1949	1950		Adjustments for 1951		1951
		(estimated)	P. L. 429	Other	(estimated)	
Marketing Research and Services	:	:	:	:	:	:
II Expansion of outlets for farm products:	:	:	:	:	:	:
b. Exploring opportunities for expanding domestic markets.....	23,137	30,600	200	--	--	30,800
IV Improvement in preparation and handling of farm products:	:	:	:	:	:	:
e. Improved storage and conditioning of farm products.....	137,045	197,400	2,000	25,000 (a)	:	224,400
f. Quality preservation in marketing channels.....	44,153	87,500	700	--	:	88,200
Total, Financial Project IV .....	181,198	284,900	2,700	25,000	:	312,600
V Evaluation and improvement of marketing system:	:	:	:	:	:	:
a. Improvement in physical plant....	29,991	46,800	400	--	:	47,200
Total, Title II, RMA.....	234,326	362,300	3,300	25,000	:	390,600

(a) An adjustment within available funds to provide \$25,000 to develop and improve equipment for processing, cleaning, and handling grass and legume seeds.

Objective and Plan of Work: A critical problem in various regions of the United States is the lack of good quality seed of grasses and legumes. An important factor in the short seed supply is the waste, spoilage, or other loss due to lack of adequate equipment and methods for drying, cleaning, and processing seed after harvest. Improved drying equipment is needed to permit earlier harvesting of some seeds, thereby preventing losses from shattering, and permitting safe storage of seed without loss of viability. Development or modification of cleaning and processing equipment is needed to handle such seed cleaning problems as the separation of plantain from clover seed; onion, radish, and garlic seed from vetch and grass seed; wheat from vetch seed; ergot from

Dallis, Bahia, and fescue seed; and dodder from lespedeza. The laboratory work would be done in cooperation with the Oregon Agricultural Experiment Station and the testing of the equipment would be done in cooperation with various other state experiment stations in problem areas. There would also be cooperation with other public and private seed trade organizations. Currently available equipment will be studied for modification to meet specific problems and new machines will be developed as necessary.

STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS  
AND WORKING FUNDS

(Amounts shown include pay adjustment costs)

Item	Obligations: 1949	Estimated Obligations: 1950	Estimated Obligations: 1951
<u>Research and Marketing Act of 1946</u>			
<u>Department of Agriculture (Allot-</u>			
<u>ment to Bureau of Plant Industry,</u>			
<u>Soils, and Agricultural Engineering):</u>			
(Title I, Sec. 10(a)) Utilization			
research .....	591,512	490,000	495,100
(Title I, Sec. 10(b)) Research			
other than utilization .....	589,293	991,300	1,000,100
(Title II) Marketing research and			
service .....	234,326	362,300	390,600
Total, Research and Marketing Act ...	1,415,131	1,843,600	1,885,800
<u>Research on Strategic and Critical</u>			
<u>Agricultural Materials, Department</u>			
<u>of Agriculture, (Allotment to</u>			
<u>Bureau of Plant Industry, Soils, and</u>			
<u>Agricultural Engineering):</u>			
For research on the development			
and production of domestic crops .....			
providing strategic and critical			
agricultural products to carry out:			
the department's responsibility			
under section 7(b) of the "Stra-			
tegic and Critical Materials Stock:			
Piling Act of July 23, 1946"			
1. Research on domestic rubber			
production from natural rubber:			
plants .....	175,096	101,800	102,500
2. Investigations of domestic pro-			
duction of vegetable tannins	—	40,800	41,100
3. Investigations on vegetable			
oils .....	—	34,100	34,300
4. Investigations on hard fiber			
plants for cordage .....	—	51,100	76,600
Total, Research on Strategic and			
Critical Agricultural Materials ...	175,096	227,800	254,500
<u>Special Research Fund, Department of</u>			
<u>Agriculture (Allotment to Bureau of</u>			
<u>Plant Industry, Soils, and Agricul-</u>			
<u>tural Engineering):</u>			
Special research laboratories in			
major agricultural regions .....	389,000	389,600	392,700
Special research projects .....	114,152	106,400	107,600
Total, Special Research Fund .....	503,152	496,000	500,300

(Continued on next page)



Item	Obligations : 1949	Estimated : Obligations : 1950	Estimated : Obligations : 1951
<u>Control of Forest Pests, Forest</u>			
<u>Pest Control Act, Department of</u>			
<u>Agriculture, (Allotment to Bureau</u>			
<u>of Plant Industry, Soils, and</u>			
<u>Agricultural Engineering):</u>			
Surveys to determine distribution			
and intensity of forest diseases			
and formulation of recommenda-			
tions for control practices .....		35,300	a/ --
<u>Working Fund, Agriculture, Agricultural</u>			
<u>Research Administration, (Allotment</u>			
<u>to Bureau of Plant Industry, Soils,</u>			
<u>and Agricultural Engineering):</u>			
1. For improvement of soil			
management and crop produc-			
tion through investigations			
with radio-active isotopes			
including alterations, im-			
provements and construction			
of facilities .....	316,215	242,850	6,463
2. Preparation of one or more			
monographs of plant fibers ..	2,845	7,250	1,905
3. Plant survey trip to Africa			
for collection of seed of ge-			
nus strophanthus .....	--	10,000	--
Total, Working Fund .....	319,060	260,100	8,368
<u>Miscellaneous Contributed Funds</u>			
<u>(Allotment to Bureau of Plant</u>			
<u>Industry, Soils, and Agricultural</u>			
<u>Engineering)</u>			
Trust funds deposited by cooper-			
ative research with non-Federal			
agencies as follows:			
1. Improvement and management			
of turf grasses, and control			
of weeds by chemical treat-			
ment .....	3,479	3,441	4,000
2. Collection of planting mate-			
rial of sugarcane species and			
varieties for the American			
sugarcane areas .....	4,774	3,200	2,500
3. Investigations on the con-			
trol of diseases of truck			
crops .....	28	185	--

a/ Allotment for 1951 has not been determined.

(Continued on next page)

Item	Obligations:	Estimated Obligations:	Estimated Obligations:
	1949	1950	1951
<u>Miscellaneous Contributed Funds</u>			
<u>(Allotment to Bureau of Plant</u>			
<u>Industry, Soils, and Agricultural</u>			
<u>Engineering): (Cont.)</u>			
4. Investigations on the production			
of morphine for medicinal use			
from the poppy plant .....	1,713	1,121	—
5. Floricultural research on new			
methods of production and pro-			
pagation, development of new			
varieties and methods of			
disease control .....	7	372	—
6. Comparison of methods for			
accelerated tests of wood decay:	5,000	5,000	—
7. Production of parent or founda-			
tion cotton seed to meet the			
needs of the one-variety pro-			
gram in California .....	7,459	6,800	6,000
8. Sugar beet storage investiga-			
tions .....	2,580	2,000	2,200
9. Spinach breeding and disease			
investigations .....	899	2,300	7,300
10. Cooperative research on phyto-			
toxicity of insecticides and			
fungicides .....	419	581	—
Total, Trust Funds .....	26,358	25,000	22,000
<u>International Information and Educa-</u>			
<u>tional Activities</u>			
<u>(Transfer from State Department</u>			
<u>to Department of Agriculture)</u>			
<u>(Allotment to Bureau of Plant</u>			
<u>Industry, Soils, and Agricultural</u>			
<u>Engineering):</u>			
Investigations directed toward			
the development of rubber produc-			
tion in the Western Hemisphere ..	348,062	345,500	—
Total, Obligations under allot-			
ments and working funds .....	2,786,859	3,233,300	2,670,968





PASSENGER MOTOR VEHICLES

Replacements. The 1951 estimates contemplate the replacement of 32 automobiles, which represents approximately 16 per cent of the total number owned and operated.

The estimated net cost of replacement is \$32,000. At the time of trade-in, each of the cars to be replaced will be six or more years old or will have an estimated mileage of over 60,000 miles. It is estimated that they will average ten years of service and will have been driven an average of more than 70,000 miles when replaced. Cars are essential for use by research workers where other means of transportation are inadequate or not available. The average age and mileage of present cars is considerably above an efficient operating level and replacements should be made as soon as possible.



BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

Purpose Statement

The Bureau of Entomology and Plant Quarantine as now established was formed in 1934 by consolidation of two existing bureaus and by adding certain functions previously carried on by other agencies of the Department. Federal research in entomology goes back to 1854. In 1878, a Division of Entomology was established in the Department of Agriculture, and in 1904 a Bureau of Entomology was organized.

The Bureau is authorized to perform the following activities:

1. Study the distribution, abundance, host plant relationships, life history, and habits of insects which are injurious or beneficial to agriculture and forestry, with a view to developing practical methods for destroying the harmful ones and promoting the increase and spread of the beneficial ones.
2. Investigate the habits and develop means for control of all insects annoying or affecting the health of man and animals, infesting human habitations, or injurious to industries.
3. Conduct chemical investigations to develop new insecticides and conduct research to improve methods and equipment for their application.
4. Enforce quarantines and restrictive orders to prevent the entry into the United States of dangerous plant pests and to regulate the importation of nursery stock, fruits, vegetables, cotton, and other plants and plant products likely to carry pests.
5. Apply control measures directed at eradication, suppression or prevention of spread of insect pests and plant diseases in cooperation with Federal, State and local agencies, private organizations, and in certain instances with the governments of Canada and Mexico.
6. Enforce plant quarantines to prevent the spread of plant pests which have gained a limited foothold, cooperating with States in these activities.
7. Inspect and certify as to freedom from injurious pests and plant diseases plants and plant products intended for export, in order to meet the sanitary requirements of the countries to which shipments are consigned.

The work of the Bureau on insect investigations is carried on in cooperation with state colleges, agricultural experiment stations, other agencies of the Federal government, associations, commercial growers, livestock owners and beekeepers. The Bureau cooperates with states and



local agencies in combatting insects and plant diseases, and in surveys to detect incipient and emergency outbreaks of insects and plant diseases.

The Bureau of Entomology and Plant Quarantine maintains its headquarters at Washington, D. C. with approximately 519 laboratories or stations located throughout the United States and in Alaska, Hawaii, Puerto Rico, the Canal Zone, Mexico, and France. The Bureau as of November 30, 1949, had a total of 2,568 full-time employees, 246 of whom were in Washington, and the balance in the field, and 285 part-time employees, employed during the active season of the respective programs, including those engaged in work on the control of forest pests. This latter activity is described in a separate section of these notes.

	<u>Estimated, 1950</u>	<u>Budget estimate, 1951</u>
Appropriated funds:		
Salaries and expenses	\$ 10,712,600	\$11,391,000
Control of Emergency Outbreaks of Insects and Plant Diseases	<u>2,253,000</u>	<u>2,500,000</u>
Total appropriated funds	\$ 12,965,600	\$13,891,000

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

Summary of Appropriations, 1950 and Estimates, 1951  
(Amounts Shown Include Estimated Pay Adjustment & Supplementals)

Item	Total	Budget	Increase (+)
	Anticipated	estimates,	or
	available, 1950 a/	1951	decrease (=)
Salaries and expenses:			
Insect investigations .....	\$3,648,100	\$4,021,000	+ \$372,900
Insect and Plant Disease Control.....	4,700,500	4,752,000	+ 51,500
Foreign Plant Quarantines .....	2,364,000	2,618,000	+ 254,000
Total, Salaries and expenses .....	10,712,600	11,391,000	+ 678,400
Control of Emergency Outbreaks of			
Insects and Plant Diseases .....	2,253,000	2,500,000	+ 247,000
Total, direct annual appropriation or estimate .....	12,965,600	13,891,000	+ 925,400

a/ Adjusted for comparability with the appropriation structure proposed in the 1951 Budget Estimate.

Salaries and Expenses

(a) Preamble

The estimates include a proposed change in the language of this item as follows (new language underscored, deleted matter enclosed with brackets):

- \*\*\* for carrying into effect the provisions of the Plant Quarantine Act of August 20, 1912, as amended (7 U.S.C. 151-167), the Honey Bee Act (7 U.S.C. 281-283), the Insect Pest Act (7 U.S.C. 141-144), the Mexican Border Act (7 U.S.C. 149), and
- 1 the Organic Act of 1944 (7 U.S.C. 147a) as amended,
  - \*\*\* including the operation and maintenance of airplanes and
  - 2 the purchase of not to exceed four, three \*\*\*

The first change in language is proposed to incorporate in the preamble reference to the amendment to the Organic Act of 1944 contained in Public Law 106, 81st Congress, approved June 17, 1949, which authorized under this item operations to combat the citrus blackfly, white-fringed beetle, and the Hall scale. The 1951 estimates propose that work on these insects be transferred in the estimates to the sub-appropriation "Insect and Plant Disease Control." (See related Explanation of Language Change under that item.)

The second change in language is proposed merely to reduce the authority for the purchase of airplanes from four to three.

(over)

(b) Insect Investigations

Appropriation Act, 1950 .....	\$3,502,300
Anticipated pay adjustment supplemental .....	50,000
Activities transferred in 1951 Estimates from "Salaries and expenses, Entomology and Plant Quarantine, Agricultural Research Administra- tion," Citrus blackfly, for continuing investi- gations and tests in Mexico on citrus blackfly.....	95,800
Base for 1951 .....	3,648,100
Budget Estimate, 1951 .....	4,021,000
Increase .....	+ 372,900

SUMMARY OF INCREASES, 1951

To place research program at selected locations on an effective operating basis .....	+168,300
To investigate new chemicals and methods for protecting man and animals against injurious insect pests .....	+93,600
For reallocation of professional positions .....	+78,000
To place on a full-year basis in 1951, pay adjustments under P. L. 429 which were in effect for only a part of fiscal year 1950 .....	+33,000

PROJECT STATEMENT

(Amounts Shown Include Pay-Adjustment Costs)

(Note - Amounts in parentheses opposite the alphabetically designated sub-projects represent a more detailed breakdown of the numerically identified main projects which immediately precede.)

Project	1949	1950	P.L. 429	Increase	1951
		(estimated)	adjustment	Other	(estimate)
1. Fruit insects ....	\$443,543	\$ 442,800	+\$4,000	+\$24,000(1)	\$470,800
(a) Deciduous fruit insects .....	:(247,597):	:(241,600):	(2,300)	(24,000)	:(267,900)
(b) Citrus and other subtropical fruit insects .....	:(55,595):	:(56,700):	(500)	- -	:(57,200)
(c) Japanese beetle investigations ...	:(140,351):	:(144,500):	(1,200)	- -	:(145,700)
2. Fruitflies, except oriental fruitfly ..	56,298	59,300	+300	- -	59,600
3. Citrus blackfly ..	80,806	98,800	+300	- -	99,100
4. Oriental fruitfly ..	49,952	453,900	+2,200	- -	456,100
5. Forest insects ...	546,050	540,400	+4,200	- -	544,600
(a) Tree-killing bark-beetles and their control .....	:(118,244):	:(113,300):	(900)	- -	:(114,200)

(Continued on next page)



Project	1949	1950 (estimated)	Increase		1951 (estimated)
			P.L. 429 adjustment	Other	
(b) Defoliating, boring, and sucking insects and their control .....	(58,873)	(47,600)	(400)	- -	(48,000)
(c) Insects affect- ing forest products and development of control methods .....	(24,447)	(36,200)	(300)	- -	(36,500)
(d) Insect vectors of forest tree diseases .....	(104,007)	(104,500)	(400)	- -	(104,900)
(e) Spruce budworm and its control .....	(240,479)	(238,800)	(2,200)	- -	(241,000)
6. Truck crop and gar- den insects .....	468,978	442,200	+4,300	+22,500(1)	469,000
(a) Tobacco insects .	(69,409)	(62,900)	(500)	- -	(63,400)
(b) Truck crop in- sects .....	(399,569)	(379,300)	(3,800)	(22,500)	(405,600)
7. Cereal and forage insects .....	554,315	563,500	+7,500	+33,500(1)	604,500
(a) Cereal and for- age insects .....	(519,393)	(528,900)	(7,200)	(33,500)	(569,600)
(b) Sugarcane in- sects .....	(34,922)	(34,600)	(300)	- -	(34,900)
8. Cotton insects .....	207,035	203,200	+4,700	+88,300(1)	296,200
(a) Boll weevil .....	(46,583)	(47,700)	(1,200)	(19,300)	(68,200)
(b) Bollworm .....	(14,286)	(17,000)	(400)	(9,900)	(27,300)
(c) Pink bollworm investigations .....	(64,181)	(51,900)	(1,200)	(34,600)	(87,700)
(d) Cotton aphid ....	(35,817)	(34,300)	(700)	(12,800)	(47,800)
(e) Cotton fleahopp- er and related in- sects .....	(15,735)	(17,600)	(400)	(11,700)	(29,700)
(f) Plant bugs af- fecting irrigated cotton .....	(22,153)	(23,600)	(600)	- -	(24,200)
(g) Various cotton insects .....	(8,280)	(11,100)	(200)	- -	(11,300)
9. Bee culture .....	174,950	176,100	+1,400	- -	177,500
10. Insects affecting man and animals .....	189,364	156,900	+1,500	+93,600(2)	252,000
(a) Insects affect- ing man and animals .	(153,763)	(130,600)	(1,300)	(93,600)	(225,500)
(b) Household in- sects .....	(35,601)	(26,300)	(200)	- -	(26,500)
11. Insect pest survey .	8,954	9,900	+400	- -	10,300
12. Identification and classification of insects .....	162,198	165,800	+800	- -	166,600

(Continued on next page)

Project	1949	1950 (estimated)	Increase		1951 (estimated)
			P.L. 429 adjustment	Other	
13. Foreign parasites ..	38,317	38,700	+200	- -	38,900
14. Control investiga- tions .....	134,762	138,300	+600	- -	138,900
15. Insecticide and fungicide investi- gations .....	160,632	158,300	+600	- -	158,900
16. Replacement of automotive equipment	40,143	- -	- -	- -	- -
17. Repair of physical facilities .....	14,441	- -	- -	- -	- -
18. For reallocation of professional posi- tions .....	- -	- -	- -	+78,000(3)	78,000
Total pay adjustment costs Public Law 429 .	- -	<u>50,800</u>	<u>+33,000</u>	<u>+27,900</u>	<u>111,700</u>
Unobligated balance ....	35,414	- -	- -	- -	- -
Total available .....	<u>3,366,152</u>	<u>3,648,100</u>	<u>+33,000(4)</u>	<u>+339,900</u>	<u>4,021,000</u>
Transferred to "Sal- aries and expenses, Office of Information, Department of Agri- culture" .....	+609	- -			
Transfer in 1950 esti- mates from:					
"Printing and binding Department of Agri- culture .....	- 32,218	- -			
"Control of forest pests, Department of Agriculture," Dutch elm disease .....	- 51,627	- -			
Transfer in 1951 esti- mates from "Salaries and expenses, Ento- mology and Plant Quarantine, Agricul- tural Research Ad- ministration, citrus blackfly .....	- -	- 95,800			
1948 appropriation ob- ligated in 1949 .....	- 95,116	- -			
Anticipated pay adjust- ment supplemental ....	- -	- 50,000			
Total appropriation or estimate .....	<u>3,187,800</u>	<u>3,502,300</u>			



## INCREASES

The increase of \$372,900 in this item for 1951 is composed of the following:

- (1) Increase of \$168,300 under projects 1, 6, 7, and 8 to place insect research programs at 13 locations on a more effective operating basis.

The Problem: Except for funds to partially meet increased salary costs no additional funds have been provided to offset the substantial increase since 1940 in operating costs. The general effect has been to reduce the number and size of experiments necessary to cope with increasing insect problems, and to delay the accomplishment of sound results.

Significance: There is increasing recognition of the need to protect crops from insects and the demand that marketed products be free from infestation and objectionable residues. In addition, many new devices for applying insecticides and numerous new insecticidal chemicals have been developed. These are being offered for use without adequate tests and impartial appraisal. Many of the new insecticides, solvents, and emulsifiers which are commercially available offer promise of increased effectiveness, and there is insistent demand from farmers for information on their use to control insects. It is highly important that they be advised of the cautions that should be observed, how the materials should be applied, and the rate and time of applications. This cannot be done without appropriate field tests, with modern types of equipment. Earlier work was planned and carried out with proportionately more funds available for operating costs. At that time the number of materials to be tested were fewer and most of the combinations could be included in experiments. To appraise similarly the numerous materials now showing promise requires more labor, and a larger number of experiments. Many stations are understaffed to operate effectively. Research should be accelerated materially to secure accurate information necessary to prepare recommendations for farmers on how to use effective insecticides safely, at the proper time, to secure desired results.

Plan of Work: The increase would be used at 13 selected locations where the need is considered most urgent for placing research on a more effective basis. Additional laboratory and field aides, a few professional personnel, equipment, and other operating items at these locations are necessary to bring research to a level of effectiveness comparable with that attained several years ago when cost levels were far below those now prevailing. That higher level of effectiveness must be maintained if the many problems of insect control are to be safely and effectually met. The following lists the activities and locations where the ratio between problems and funds for operating costs is most acute, which would be corrected in part, by the recommended increase:



Fruit insects--codling moth and other insects  
affecting apples, and related fruits, +\$24,000:

Yakima, Washington +\$10,600  
Vincennes, Indiana +6,700  
Kearneysville, W.Va. +6,700

Cotton insects, +\$88,300:

Tallulah, Louisiana +29,400  
Waco, Texas +19,600  
Brownsville, Texas +19,600  
San Benito, Texas +7,900  
Ysleta, Texas +11,800

Cereal and forage insects, +\$33,500:

Bozeman, Montana +32,100  
(grasshopper inves.)  
Lafayette, Indiana +1,400  
(chinchbug inves.)

Truck crop and garden insects, +\$22,500:

Walla Walla, Wash. +11,900  
(wireworm inves.)  
Twin Falls, Idaho +10,600  
(sugar beet insects)

(2) Increase of \$93,600 under the project "Insects affecting man and animals" to determine and develop safe, effective procedures for using new devices and chemicals to control insects injurious to man and animals.

Objective: To provide for studies to determine how new chemicals such as DDT, toxaphene, lindane, chlordane, etc., can be effectively and safely used; how they can be applied; tests of the various repellents that may be effective and safe; appraisal of tolerance of various kinds of insects to these new chemicals; analyses of how the new materials may be used in connection with ditching and drainage activities. Close cooperation would be maintained with State and local organizations and other Federal agencies concerned with the problems.

The Problem: Numerous insects adversely affect man and animals by transmitting disease and causing annoyance of economic importance. Mosquitoes, for example, occur throughout the country and are particularly prevalent along coastal areas, in irrigated regions, along rivers and streams especially those which flood, and in forested and grazing areas in mountains. They seriously handicap agriculture by reducing effective labor, and cause meat and milk losses in domestic livestock. Sand flies and the many kinds of small biting midges commonly called black flies are widely distributed. Some kinds largely confine their attacks to man and may cause such annoyance as to force the discontinuance of outdoor activities, including farm operations. Others show preference for animals and are serious pests of poultry and all classes of livestock. Occasionally outbreaks occur in which numbers of horses, mules and cattle are killed. Chiggers, or red bugs, an annoying pest of man, adversely affect poultry and often kill many young turkeys and chickens. Chiggers are particularly troublesome in the South and the Midwest. Several kinds of ticks are widely prevalent

and transmit diseases of man and animals. They are particularly troublesome to farmers, woodsmen and others who frequent infested areas.

During and since the war investigations to develop facts on these pests and their control have been financed largely from allotments of funds provided by military agencies to determine ways of protecting military personnel. These studies were highly productive and contributed many important methods for protecting our forces from these several classes of pests. New devices were developed, new chemicals were tested and means for their use determined. In all these investigations attention was focused on military aspects of the various problems. The objective differed in many ways from that which is fully applicable to agricultural and civilian communities. Methods were prescribed to be followed by individuals specifically taught and often the operations were designed to be carried out under trained supervision. In many instances the calculated risk was markedly different than that which can be applied in appraising farmer and civilian use.

Plan of Work: The investigations would be headquartered at field laboratories now used, which include: Orlando, Florida; Savannah, Georgia; Kerrville, Texas; and Corvallis, Oregon. Tests and field trials would be carried on at appropriate locations, including several areas along the Atlantic and Gulf Coasts, in the New England States, in the Middle West and the rice area in Arkansas. For the most part the personnel would be entomologists who would work under the general direction of leaders at established stations, an exception being at Orlando, Florida where the agricultural phases of studies would be under a field leader. The studies would concern themselves principally with mosquitoes, sandflies, black flies, chiggers, and ticks affecting man.

(3) Increase of \$78,000 for reallocation of certain professional positions to meet Civil Service Commission specifications.

Need for Increase: A recent careful survey has been made to determine the application of Civil Service Commission specifications for research entomologist positions to work done by professional research personnel of the Bureau. This survey showed that approximately 135 positions, or about 40 percent of the professional positions under this appropriation, should be raised one grade to meet the specifications. Under Executive Order 9512, compliance with published specifications is mandatory.

The existing dislocations involve positions in the range of GS-5 through GS-13. The fact that it has not been possible to comply with Executive Order 9512, and the more recently enacted Classification Act of 1949, results in a continuing inequitable situation for the employees involved. It is incumbent upon the Bureau to meet the expense involved in rectifying improper classification. Without the increase requested, the only alternative is to curtail essential research work by general reductions affecting work on economic insects attacking cotton, cereals, fruit, and vegetables and those causing injury to men and animals.

(4) Increase of \$33,000 to place on a full-year basis in 1951 pay adjustments under P. L. 429 which were in effect for only a part of the fiscal year 1950.



# INSECT INVESTIGATIONS

## Alternate Project Statement

Project	1949	1950	1951	1951				Grand Total	
				Increase	Esti- mated	RMA			Special:
						Section : 10(a)	Section : 10(b)		
1. Fruit insects ..	443,543	442,800	470,800	+	28,000	470,800	-	20,600	491,400
(a) Deciduous ..				+					
fruit insects ..	(247,597)	(241,600)	(267,900)	+	(+26,300)	(267,900)	-	(20,600)	(288,500)
(b) Citrus and ..				+					
other subtropical:				+					
fruit insects ..	( 55,595)	( 56,700)	( 57,200)	+	(+500)	( 57,200)	-	-	( 57,200)
(c) Japanese ..				+					
Beetle Investiga-				+					
tions .....	(140,351)	(144,500)	(145,700)	+	(+1,200)	(145,700)	-	-	(145,700)
2. Fruitflies (except				+					
oriental fruitfly}	56,298	59,300	59,600	+	+300	59,600	-	-	59,600
3. Citrus blackfly :	80,806	98,800	99,100	+	+300	99,100	-	-	99,100
4. Oriental fruitfly:	49,952	453,900	456,100	+	+2,200	456,100	-	-	456,100
5. Forest insects . :	546,050	540,400	544,600	+	+4,200	544,600	-	-	544,600
(a) Tree-killing :				+					
bark-beetles and :				+					
their control .. :	(118,244)	(113,300)	(114,200)	+	(+900)	(114,200)	-	-	(114,200)
(b) Defoliating, :				+					
boring, and suck-				+					
ing insects and :				+					
their control .. :	( 58,873)	( 47,600)	( 48,000)	+	(+400)	( 48,000)	-	-	( 48,000)
(c) Insects af-				+					
fecting forest :				+					
products and de-				+					
velopment of con-				+					
trol methods ... :	( 24,447)	(36,200)	( 36,500)	+	(+300)	( 36,500)	-	-	( 36,500)

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Project	1949	1950 Esti- mated	Increase	1951 Esti- mated	1951			Special Research Fund	Grand Total
					RMA				
					Section 10(a)	Section 10(b)	Total		
(d) Insect vec- tors of forest tree diseases	(104,007)	(104,500)	(+400)	(104,900)	-	-	-	-	(104,900)
(e) Spruce bud- worm and its control	(240,479)	(238,800)	(+2,200)	(241,000)	-	-	-	-	(241,000)
6. Truck crop and garden insects	468,978	442,200	+26,800	469,000	-	76,700	76,700	-	545,700
(a) Tobacco in- sects	(69,409)	(62,900)	(+500)	(63,400)	-	(20,500)	(20,500)	-	(83,900)
(b) Truck crop insects	(399,569)	(379,300)	(+26,300)	(405,600)	-	(56,200)	(56,200)	-	(461,800)
7. Cereal and forage insects	554,315	563,500	+41,000	604,500	-	36,700	36,700	-	641,200
(a) Cereal and forage insects	(519,393)	(528,900)	(+40,700)	(569,600)	-	(36,700)	(36,700)	-	(606,300)
(b) Sugar cane in- sects	(34,922)	(34,600)	(+300)	(34,900)	-	-	-	-	(34,900)
8. Cotton insects	207,035	203,200	+93,000	296,200	-	60,700	66,700	-	362,900
(a) Boll Weevil	(46,583)	(47,700)	(+20,500)	(68,200)	-	-	-	-	(68,200)
(b) Bollworm	(14,286)	(17,000)	(+10,300)	(27,300)	-	-	-	-	(27,300)
(c) Pink bollworm investigations	(64,181)	(51,900)	(+35,800)	(87,700)	-	-	-	-	(87,700)
(d) Cotton aphid	(35,817)	(34,300)	(+13,500)	(47,800)	-	-	-	-	(47,800)
(e) Cotton Flea- hopper and re- lated insects	(15,735)	(17,600)	(+12,100)	(29,700)	-	-	-	-	(29,700)
(f) Plant Bugs af- fecting irrigated cotton	(22,153)	(23,600)	(+600)	(24,200)	-	-	-	-	(24,200)
(g) Various cot- ton insects	(8,280)	(11,100)	(+200)	(11,300)	-	-	-	-	(11,300)

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	1949	1950 Esti- mated	Increase	1951 Esti- mated	1951 RUSA			Special: Research: Fund	Grand Total
					Section 10(a)	Section 10(b)	Total		
(h) Basic research on cotton insects relating to fundamental factors affecting control:									
9. Bee culture .....	174,950	176,100	+1,400	177,500	--	( 66,700)	( 66,700)	--	( 66,700)
10. Insects affecting man and animals	189,364	156,900	+95,100	252,000	19,700	20,300	40,000	11,300	228,800
(a) Insects affecting man and animals					58,800	75,800	134,600	--	386,600
(b) Household insects	(153,763)	(130,600)	(+94,900)	(225,500)	(12,700)	( 75,800)	( 88,500)	--	(314,000)
(c) Treating building materials of agricultural origin to prevent insect damage....	( 35,601)	(26,300)	( +200)	( 26,500)	--	--	--	--	( 26,500)
11. Insect pest survey	8,954	9,900	+400	10,300	( 46,100)	--	( 46,100)	--	( 46,100)
12. Identification and classification of insects.....	162,198	165,800	+800	166,600	--	--	--	--	166,600
13. Foreign parasites:	38,317	38,700	+200	38,900	--	50,700	50,700	--	89,600
14. Control investigations .....	134,762	138,300	+600	138,900	--	--	--	--	138,900
15. Insecticide and fungicide investigations .....	160,632	158,300	+600	158,900	59,200	34,200	93,400	--	252,300
16. Replacement of automotive equipment .....	40,143	--	--	--	--	--	--	--	--

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Project	1949	1950 Esti- mated	Increase	1951 Esti- mated	1951				Grand Total
					RMA				
					Section : 10(a)	Section : 10(b)	Total	Special : Research : Fund :	
17. Repair of physical facilities .....	14,441	- -	- -	- -	- -	- -	- -	- -	- -
18. For reallocation of professional positions .....	- -	- -	+78,000	78,000	- -	- -	- -	- -	78,000
19. Pay adjustment costs .....	- -	[50,800]	[+60,900]	[111,700]	[4,700]	[9,700]	[14,400]	[300]	[126,400]
Unobligated balance	35,414	- -	- -	- -	- -	- -	- -	- -	- -
Total available.	3,366,152	3,648,100	372,900	4,021,000	137,700	381,700	519,400	11,300	4,551,700
Transferred to "Salaries and expenses; Office of Information, Department of Agriculture" ..	+609	- -	- -	- -	- -	- -	- -	- -	- -
Transfer in 1950 estimates from:	-	-	-	-	-	-	-	-	-
"Printing and binding, Department of Agriculture" ..	32,218	- -	- -	- -	- -	- -	- -	- -	- -
"Control of forest pests, Department of Agriculture, "	-	- -	- -	- -	- -	- -	- -	- -	- -
Dutch elm disease	51,627	- -	- -	- -	- -	- -	- -	- -	- -
Transfer in 1951 estimates from:	-	-	-	-	-	-	-	-	-
"Salaries and expenses, Entomology and Plant Quarantine, Agricultural Research Administration" .....	- -	- 95,800	- -	- -	- -	- -	- -	- -	- -



Project	1949	1950 Esti- mated	Increase	1951 Esti- mated	1951			Grand Total
					RMA	Section : 10(a)	Section : 10(b)	
1948 appropriation obligated in 1949	- 95,116:	- -						
Anticipated pay ad-justment supple-mental.....	- -	- 50,000:						
Total appropriation or estimate .....	3,187,800:	3,502,300:						

RMA Projects

Financial Project No.	RMA Project No.	Project Title	1949	1950 (estimated)	Adjustments for 1951		1951 (estimated)
					P. L. 429	Other	
9	87	Section 10(a) Utilization re- search: Study of the chemical, phy- sical and biochemical prop- erties of apiary products for the purpose of extend- ing their utilization, of developing from them new and improved products, and of finding new uses for them .....	19,500	19,500	+200	-	19,700
10 - 15	22	Use of agricultural products: as insecticides and ac- cessory materials .....	60,962	71,300	+600	-	71,900
10	42	Treating building materials: of agricultural origin to prevent insect damage .... Total, Section 10(a) ...	42,676 123,138	45,300 136,100	+800 +1,600	-	46,100 137,700
1	23	Section 10(b) Research other than utilization: Research on the virus di- seases of stone fruits ...	15,780	20,300	+300	-	20,600
8	43	Basic research on cotton in- sects relating to fundamen- tal factors affecting control .....	59,000	61,300	+300	-	61,600

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Finan- cial Project: No.	RMA Project: No.	Project Title	1949	1950 (estimated)	Adjustments for 1951			1951 (estimated)
					P. I.	429	Other	
6 - 8	68	Develop and improve equipment and companion formulations for effective application of insecticides and fungicides	14,656	25,400	+200	- -		25,600
13	264	Importation and establishment of natural enemies of fruit- flies	40,997	50,600	+100	- -		50,700
7	314	Develop improved sawfly re- sistant varieties of wheat, better cultural practices, and insecticidal measures, for control of the wheat stem sawfly	18,895	20,500	+600	- -		21,100
6	425	Control of the beet leaf- hopper (white-fly) as the carrier of the virus of curly top disease to beans	33,322	40,400	+300	-5,000(a)		35,700
9	532	Value of various insects in pollination of crops with special reference to adverse effect of agricultural chemicals	- -	20,200	+100	- -		20,300
6	534	Determine the cause and pre- vention of aphid outbreaks on tobacco	- -	20,300	+200	- -		20,500



Finan- cial Project No.	RMA Project No.	Project Title	1949	1950 :(estimated)	Adjustments for 1951: P.L. 429 : Other	1951 :(estimated)
10	535	Develop methods of control of fire ants.	—	15,400	4200	15,600
3	536	Research on the Rhodes grass scale as a pest of pasture grasses .....	—	15,400	4200	15,600
10 - 15	72	Toxicological effects of insecticides, fungicides and herbicides on plants and animals.....	64,914	71,400	4500 (b) 47,000	78,900
10	538	Investigations of horse flies and deer flies and methods of their control.....	—	15,400	4100	15,500
		Total, Section 10(b).....	247,564	376,000	43,100	381,700
		Total, RMA .....	370,702	512,700	44,700	519,400

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# Special Research Projects

9 :SRF-2- : Investigations of the properties of bee : : : :  
: 99 : disease organisms and bee products.....: 10,331 : 11,200 : 4100 : : 11,300

- (a) An adjustment of \$5,000 under project 425, "Control of the beet leafhopper (whitefly) as the carrier of the virus of curly top disease to beans" to reflect reduction due to elimination of non-recurring expenses incident to establishing new project.
- (b) An adjustment within available funds to provide an additional \$7,000 under project 72, "Toxicological effects of insecticides, fungicides, and herbicides on plants and animals," to determine insecticide residues in living things.



(b) - Continued

Objective: To develop methods of chemical extraction and biological testing to determine quantitatively minute amounts of insecticide chemicals in tissues of animals, in milk and on forage crops and foods.

The Problem and Significance: There is no known chemical method of determining specifically certain insecticidal materials that may occur in food products and a study of living things using insects as test animals would materially facilitate work in this important field. To determine tolerance levels and acquire information for advising the public as to how insecticides may be safely used, further work in this field is necessary.

Plan of Work: Chemists would devise simple methods of extracting and preparing insecticidal materials for testing on insects. House flies, mosquito larvae and perhaps other insects would be tested and methods of standardizing techniques devised.



### CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored, deleted matter enclosed with brackets):

- Insect investigations: \*\*\*and for investigations of insecticides and fungicides, including methods of their manufacture and use and the effects of their application, [\$3,502,300, 1 of which \$173,500 is for bee culture] \$4,021,000: Provided, 2 That of the amount allotted [~~\$450,000 shall be available~~] for 3 oriental fruitfly, [of which \$25,000 may be transferred to and consolidated with the appropriations, "insect and plant disease control" and "foreign plant quarantine", to either or in part to each as may be deemed best, for inspection and/or control work on this pest; and] not to exceed \$250,000 may be used for contracts with public or private agencies for research without regard to provisions of existing law, and the amounts obligated for contract research shall remain available until expended.

The first and second changes in language propose to delete the provisions included in the 1950 Appropriation Act, specifying the amounts available for "bee culture" and "oriental fruitfly". These changes are proposed solely for the purpose of simplifying the accounting work involved, and assuming ultimate approval of the estimates as proposed herein, will in no way affect the level of operations or the conduct of the work to be performed on bee culture and the oriental fruitfly.

The third change deletes the provision, included in the 1950 Appropriation Act, that \$25,000 may be transferred to and consolidated with other appropriations of the Bureau. This provision is no longer necessary since the estimates for the fiscal year 1951 provide for conducting necessary quarantine work under the subappropriation "foreign plant quarantines". No amount has been included in the 1951 estimate for the subappropriation "insect and plant disease control" for control of oriental fruitfly, since adequate control methods have not yet been developed.

## STATUS OF PROGRAM

Current Activities: The work on insect investigations includes studies on the distribution, abundance, host relationships, life history, habits, and methods of control of insects and the development of means for the utilization of natural enemies for the control of insect pests, including the importation of natural enemies of introduced pests which are injurious to agriculture and forestry. The activities are carried on in practically every state, in Hawaii, Puerto Rico, Panama, Mexico, and headquarters for foreign parasite work are maintained in France. The work is conducted through field tests and laboratory experiments. Most of the activities are carried on in cooperation with state colleges, agricultural experiment stations, other agencies of the Federal government, associations, commercial growers, livestock owners and beekeepers.

Insect pests affect all phases of agriculture, and are important problems in many industrial activities and in the home. The importance of a strong continuing research program to develop improved control methods is emphasized by the fact that losses inflicted by insect pests approximate four billion dollars annually.

Research objectives include the following general purposes:

1. To develop means whereby the growers of fruits, nuts, truck and garden crops, cereal, forage and range crops, cotton, tobacco, sugar plants and other agricultural products, can control insect pests more effectively or more economically, thus increasing the net returns from their operations and insuring an ample supply of high-quality agricultural products.
2. To devise the most effective and economical means of preventing or controlling insect damage to forest and shade trees, forest products and shrubs.
3. To devise and improve methods of utilization of the honey bee for the production of honey and wax, and for the pollination of crops.
4. To develop control measures for those insects which transmit disease, annoy man, and attack livestock.
5. To devise the most effective and economical means of preventing or controlling insect damage to stored agricultural products, foods and fabrics.
6. To identify insects and allied organisms for the quarantine, control and research activities of the Bureau and for other Federal and State agencies, farmers, pest control operators, and other private individuals of the United States, as well as for foreign institutions; and to collect, maintain, and furnish information as to the presence and abundance of insect pests.

7. To develop methods and apparatus for freeing commodities of pests under plant quarantine regulations so that they can move freely and safely in commerce.
8. To improve the chemical materials now employed in controlling insects, to develop new and better chemical materials and to devise improved apparatus and methods for their application.

Examples of Recent Progress and Trends: Among recent accomplishments in which the Bureau has participated are the following:

#### Fruit Insects

Renewed attention is given to the problem of codling moth control due to anticipated lowering of the administrative tolerance for DDT at harvest time. Work now in progress indicates insecticides such as parathion and methoxychlor that leave less objectionable residues may supplement DDT.

Outstanding control of red-banded leaf roller was obtained in Indiana and Virginia through use of TDE, also known as DDD and Rothane.

Parathion in experimental applications has given excellent control of orchard mites and good control of many other insects that attack pears, plums, grapes, figs, citrus and apples. Additional work is needed to determine the most practical concentration and schedules of application, and the health hazards to operators.

#### Fruitflies and Citrus Blackfly

Oriental fruitflies are known to infest more than 100 varieties of fruits and vegetables and other plants in Hawaii.

Expansion of cooperative oriental fruitfly program is under way along five lines in Hawaii (1) biology and habits (2) treatment of infested products (3) search for most effective insecticides (4) large-scale control and eradication studies, and (5) biological control. Progress along all lines has been made but results are still inconclusive.

Excellent control of immature stages of citrus blackfly has been obtained in Mexico with experimental application of finely ground cube dust in special grade petroleum oil, but repeated application at short intervals injure trees.

Progress in evaluation of insecticides as tank dips and methyl bromide as a fumigant for citrus blackfly on leaves in lime shipments at Texas border indicates possibility of a recommended treatment at an early date.

Treatment period for citrus fruit has been reduced by 4 hours as the result of investigations in vapor-heat sterilization; thus benefiting growers in the Rio Grande Valley of Texas in meeting quarantine requirements.



### Forest Insects

Experimental control of the leafhopper which spreads phloem necrosis, a virus disease of elms, has been modified to adjust the spray program to conform to the seasonal activity of the known insect vector, which is capable of picking up the virus from a diseased tree a month or more before symptoms appear.

Control of western pine beetle by selective logging resulted in reduction of subsequent insect-caused mortality of approximately 86 percent the first year and of approximately 76 percent for a 10-year period of study.

A less expensive and more practical means of controlling the destructive ambrosia beetle is indicated by experimental treatments of stacked logs and lumber with benzene hexachloride.

The adequacy of community-wide treatment of elms with DDT to combat the dreaded Dutch elm disease is being studied at the request of officials in several cities, with some promise of economic control indicated, provided sanitation measures are combined with frequent insecticidal application.

### Truck Crop and Garden Insects

Cost of controlling cabbage caterpillars is reduced by adding a small quantity of oil solvent to a dust mixture containing 1 percent of DDT. This mixture has supplanted a 3 percent DDT formulation and the more expensive arsenical and fluorine compounds previously used.

Improved and cheaper control of aphids on cole crops is achieved by use of dust mixtures containing tetraethyl pyrophosphate and hexaethyl tetraphosphate as substitutes for nicotine.

A serious pest of greenhouse plants, the two-spotted spider mite, is readily killed by aerosols containing a new experimental insecticide known as octamethyl pyrophosphoramide.

Pea aphids are best controlled by DDT, although the residue left on pea vines presents an unsolved problem.

For the first time, a universally practical remedial measure is available for control of wireworms through the use of DDT or ethylene dibromide in treating infested soil.

Better control of the cigarette beetle infesting stored tobacco is obtained through a mixture of acrylonitrile and carbon tetrachloride than by use of the standard hydrogen cyanide fumigation commonly used by industry.

### Cereal and Forage Insects

Chlordane or toxaphene in dry or wet baits, as well as in sprays or dusts, has been found more effective in combating grasshoppers than materials previously used.

European corn borers, in 1949, caused a loss of approximately 250,000,000 bushels of grain corn, valued at about \$250,000,000. This pest is now established throughout the corn belt. Through surveys the Bureau obtains information used in advising farmers when and how to treat infestations.

Benzene hexachloride and parathion gave excellent control of the green-bug when applied to small grains in preliminary tests in Oklahoma and North Dakota.

Good control of Southern corn rootworm attacking peanuts in Virginia has been obtained through experimental application of benzene hexachloride and parathion.

Damage to wheat by wheat stem sawfly in Montana and North Dakota is expected to involve more than 3,000,000 bushels in 1949. Experiments are in progress on its cultural and insecticidal control.

### Cotton Insects

Benzene hexachloride and toxaphene have come into wide use in boll weevil control, although calcium arsenate is still used to a considerable extent.

Cotton stalk destruction aids materially in boll weevil control in several Texas counties when clean-up work is accomplished before frost.

Toxaphene has proved toxic to more of the insects affecting cotton than any other insecticide that is widely used.

### Bee Culture

Bees do not carry the new insecticides back to their hives as was the case with arsenicals, according to observations made in Utah. Bee losses have therefore been reduced significantly.

Approximately 1200 artificially inseminated queen bees were distributed for test purposes during 1948 through the Honey Bee Improvement Cooperative Association.

Wild bee species are selective in choosing crops; for example, only 27 species appear to contribute in an important degree to pollination of alfalfa in Utah, although some 65 species are known to be present.

### Insects Affecting Man and Animals

TDE may serve as an effective substitute for DDT in mosquito control under conditions where DDT might prove harmful to fish.

Outstanding control of gnats was attained by application of TDE to Clear Lake in California in 1949 with no damage to fish.

Increasing resistance of house flies to DDT is reported in several States, with development of substitutes complicated by the fact that such resistant flies are also more difficult to control with other insecticides. Lindane and methoxychlor are among the most effective substitutes for DDT considered safe for use as a residual treatment for housefly control in dairy barns.

Several promising smears for the control of screwworm are under investigation which are more effective and desirable than the standard smear 62 in common use.

Methoxychlor was found to be an effective substitute for DDT for louse control on cattle.

Experiments indicate that DDT, benzene hexachloride, chlordane, toxaphene, TDE and methoxychlor are effective in controlling the sheep tick when used as dips. Rotenone, however, is also highly effective and in dip form is generally more economical. Chlordane and benzene hexachloride sprays are superior to DDT, toxaphene, TDE, methoxychlor and rotenone, with sprays much more effective on sheep with short rather than long fleece.

The Gulf Coast tick is effectively controlled by toxaphene, chlordane, and BHC-DDT sprays, with good results also obtained by a combination Lindane-DDT treatment applied at 2 to 3 week intervals. Chlordane also shows promise.

Chlordane is considered the most effective of the generally available insecticides for ant control in houses, with preliminary tests indicating that Compounds 118 and 497 may be superior to chlordane.

For protection of clothing from attack by clothes moths and carpet beetles, the following materials in the order named have shown promise: DDT, TDE, Chlordane, methoxychlor, toxaphene, and benzene hexachloride.

### Identification and Classification of Insects

More than 58,000 insect samples were identified during fiscal year 1949 for Federal agencies, agricultural colleges, experiment stations, state health offices, and individuals, thus forming a basis for control or other action.

A classification of the genera of North American leaf-hoppers, a group containing many direct plant pests and vectors of virus diseases, has been completed.



### Foreign Parasites

Imported natural enemies of the Klamath weed show promise of restoring approximately 200,000 infested acres in California to its original range condition.

### Control Investigations

DDT residues were found to lose effectiveness when exposed to sunlight, and the decomposed substances are non-toxic.

One hundred fifteen samples of plant material were tested for insecticidal value against the housefly, plant feeding mites and other insects with seven showing toxicity to one or more insect species, and 17 proved to have insecticidal value.

### Insecticide and Fungicide Investigations

A method has been developed for synthesizing compounds similar in chemical structure and insecticidal properties to the natural pyrethrins, and several manufacturers are producing experimental quantities for market.

An improved aerosol formula for use in airplanes has been developed which is less irritating to passengers and crew and less damaging to plastic aircraft materials than the old formula.

An ethylene dibromide dip for use in connection with Japanese beetle quarantine has been approved for treatment of infested plant balls.

(c) Insect and Plant Disease Control

Appropriation Act, 1950 .....	\$3,564,000
Anticipated pay adjustment supplemental .....	48,000
Activities transferred in 1951 Estimates from:	
"Salaries and expenses, Entomology and Plant Quarantine, Agricultural Research Administration," Citrus blackfly, for citrus blackfly control .....	96,500
"Control of emergency outbreaks of insects and plant diseases" for:	
White-fringed beetle control .....	860,000
Halt scale eradication .....	132,000
Base for 1951 .....	4,700,500
Budget Estimate, 1951 .....	4,752,000
Increase, (To place on a full-year basis in 1951, pay adjust- ments under P.L. 429 which were in effect for only a part of fiscal year 1950) .....	+51,500

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

(Note.--Amounts in parentheses opposite the alphabetically designated sub-projects represent a more detailed breakdown of the numerically identified main projects which immediately precede.)

Project	1949	1950 (estimated)	Increase P.L. 429 adjustment	1951 (estimated)
1. Japanese beetle con- trol .....	\$463,876	\$516,700	+\$3,300	\$520,000
2. Sweetpotato weevil control .....	233,997	229,400	+1,600	231,000
3. Mexican fruitfly control .....	180,856	206,600	+2,400	209,000
4. Phony peach and peach mosaic eradication ...	152,649	161,800	+2,200	164,000
5. Barberry eradication ✓	424,296	705,700	+3,300	709,000
6. Pink bollworm and Thurberia weevil con- trol .....	1,086,252	1,255,200	+8,800	1,264,000
(a) Suppression and prevention of spread of the pink bollworm	(934,177)	(922,100)	(+6,500)	(928,600)
(b) Cooperation with the Mexican Government to control pink boll- worm infestations to prevent spread into the United States .....	(152,075)	(158,600)	(+1,100)	(159,700)

(Continued on next page)

Project	1949	1950 (estimated)	Increase :P.L. 429 adjustment	1951 (estimated)
(c) Eradication of wild: cotton in Florida for protection of culti- vated cotton from pink bollworm .....	- -	(174,500)	(+1,200)	(175,700)
7. Golden nematode con- trol .....	496,933	463,800	+3,200	467,000
8. Citrus blackfly control .....	- -	96,500	+500	97,000
9. White-fringed beetle control .....	860,501	860,000	+22,000	882,000
10. Hall scale eradica- tion .....	133,843	132,000	+3,000	135,000
11. Transit inspection ..	71,147	72,800	+1,200	74,000
12. Replacement of auto- motive equipment .....	76,414	- -	- -	- -
Total pay adjustment costs, Public Law 429 ..	- -	[49,500]	[+51,500]	[101,000]
Unobligated balance ...	54,076	- -	- -	- -
Total available .....	4,234,840	4,700,500	+51,500	4,752,000
Transferred to "Salaries and expenses, Office of Information, Depart- ment of Agriculture" ..	+ 5,000	- -		
Transfer in 1950 esti- mates from:				
"Printing and binding, Department of Agriculture" .....	-15,296	- -		
Transfer in 1951 esti- mates from:				
"Salaries and expenses, entomology and plant quarantine, Agricul- tural Research Admini- stration, citrus blackfly" .....	- -	-96,500		
"Control of emergency outbreaks of insects and plant diseases" ..	-994,344	-992,000		
Anticipated pay adjustment: supplemental .....	- -	-48,000		
Total appropriation or estimate .....	3,230,200	3,564,000		



# CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored, deleted matter enclosed with brackets):

- Insect and plant-disease control: For carrying out operations or measures to eradicate, suppress, control, or to prevent or retard the spread of Japanese beetle, sweetpotato weevil, Mexican fruitflies, phony peach and peach mosaic, cereal rusts, 1 pink bollworm and Thurberia weevil, and the golden nematode, citrus blackfly, white-fringed beetle, and the Hall scale, including the enforcement of quarantine regulations and cooperation with States to enforce plant quarantines as authorized by the Plant Quarantine Act of August 20, 1912, as amended (7 U. S. C. 151-167), and including the establishment of such cotton-free areas as may be necessary to stamp out any infestation of the pink bollworm as authorized by the Act of February 8, 1930 (46 Stat. 67), \*\*\*\*\* authorized by the Golden Nematode Act (Public Law 645, Eightieth Congress, approved June 15, 1948), \*\*\*

The first change in language is proposed to include provision under this appropriation to carry out operations to combat the citrus blackfly, white-fringed beetle, and the Hall scale. Authority for operations to combat these three pests is provided in Public Law 106, 81st Congress, approved June 17, 1949. Operations to combat white-fringed beetle and Hall scale have heretofore been carried on under authority to control incipient and emergency outbreaks of insects and plant diseases (7 U. S. C. 148) and funds have been allotted from appropriations provided under that authorization. Operations for cooperation with Mexico in combatting the citrus blackfly were provided in a separate subappropriation item titled "Citrus blackfly" by the Third Deficiency Appropriation Act, 1949, approved October 10, 1949. The estimates propose that this work be financed in fiscal year 1951 under "Insect and plant disease control".

The second change in language is for the sole purpose of simplifying and shortening the wording of the item.



STATUS OF PROGRAM

Current activities provide for protection of American agriculture from certain destructive insect pests and plant diseases, by conducting, in cooperation with States, operations to control, suppress and prevent spread of these pests and plant diseases, including enforcement of regulations on movement of commodities that may be the means of carrying the pests and plant diseases into uninfested sections.

Among the undertakings now in process, the following are selected as typical:

1. Retarding the spread of the Japanese beetle to non-infested sections of the United States and suppressing infestations in newly located outlying areas. This involves inspection and certification of commodities likely to carry the beetles from the regulated areas, comprising all or parts of the 14 states in northeastern part of the United States.
2. The prevention of spread of the sweetpotato weevil and its eradication from commercial-producing areas. The operations are conducted in cooperation with the States of Alabama, Florida, Georgia, Louisiana, Mississippi, South Carolina, and Texas.
3. The prevention of spread of the Mexican fruitfly from the citrus producing area of Texas.
4. Suppression and prevention of spread of the phony peach and peach mosaic diseases. These activities are conducted in cooperation with southern states from California to South Carolina.
5. Control of the destructive stem rust disease of wheat, oats, barley, and rye by the eradication of barberries which are the alternate host of the disease. Control work is conducted in 18 grain-growing states.
6. Eradication, suppression, control and prevention of the spread of the pink bollworm from areas where it is now present and prevention of spread of the Thurberia weevil. These operations are carried on in cooperation with all the major cotton-producing States and the Republic of Mexico.



7. Eradication, suppression, control, and prevention of spread of the golden nematode. These operations are carried on in cooperation with the State of New York, particularly in Nassau and Suffolk Counties where the only known infestations in the United States occur. Precautionary surveys are made in other major potato and tomato-producing States.
8. Citrus Blackfly. Control and regulatory activities in connection with the citrus blackfly in Mexico consist of:
  - (a) Inspections in Mexico to determine location and intensity of inspections.
  - (b) Cooperation with National, State, and local officials in Mexico (1) to control the citrus blackfly and (2) to prevent its spread to uninfested areas. These activities are advisory.
9. Control and prevention of spread of white-fringed beetle. Operations are carried on in cooperation with 8 southeastern states.
10. Eradication of Hall Scale. Activities are conducted in cooperation with the California Department of Agriculture to eliminate this destructive scale insect which is known to occur only in limited areas in that State.
11. Inspection at strategically located transportation centers to intercept shipments of commodities, moving in apparent violation of Federal and State quarantines.

Examples of Recent Progress and Trends: Among recent accomplishments in which the Bureau has participated are the following:

1. Japanese Beetle Control

- a. Scouting for Japanese beetles in fiscal year 1949 was performed at 138 airfields, 1,480 plant-growing sites, and 287 other possibly infested locations in 43 states. No beetles were found at significant distances from where they had previously been collected. The scouting program for the fiscal year 1950 provides that inspections will be made for the most part in nursery areas. Such areas present the special hazard for spread to many new locations.
- b. Efforts to prevent spread of Japanese beetles by aircraft flying from infested fields were increased in 1949. During the previous year, 12,660 aerosol and 2,175 residual DDT treatments were made to departing planes at 20 military and 17 commercial airfields in 9 states. Inspectors removed clinging beetles from passengers and cargo at 7 airfields. DDT was applied to Japanese beetle food plants at three heavily infested airfields.

- c. Public and private agencies participated in all phases of Japanese beetle control work. State, county, and city governments; U. S. Air Force and Navy officials; and personnel of seven Divisions of the Bureau cooperated on the survey work in 45 states. Personnel, equipment, and insecticides were contributed by state and local agencies and by nurserymen in 10 states where suppressive work was supervised in newly infested areas. Sixteen states participated in the certification of regulated articles as prescribed by the Federal quarantine. All treatments required of growers and shippers as a basis for certification were supervised by inspectors.
- d. About \$16,000,000 worth of farm and nursery products were safely shipped to consumers outside the infested area under the provisions of the quarantine. In performing this work, project inspectors made 22,508 calls to growers, shippers and individual homes. A total of 93,450,000 nursery and greenhouse plants, 5,324 cars and truckloads of fresh fruits and vegetables, and 17,491 packages of cut flowers were certified for safe movement during the last fiscal year.

## 2. Sweetpotato Weevil Control

- a. Through planting stock supervision, the inspection and treatment of shipped and stored sweetpotatoes, and by simple sanitation measures in fields and storages, this cooperative Federal-state project aims both to prevent the spread of this weevil, the worst pest of sweetpotatoes, and to reduce or eliminate damage from it throughout the nationally important commercial sweetpotato belt in Alabama, Florida, Georgia, Louisiana, Mississippi, South Carolina, and Texas.
- b. Effectiveness of the cooperative control program is shown by the fact that 8,909 infested locations have been freed from weevil since 1937, and that this pest has been eliminated from 37 infested counties during this period.

### Summary of Program

State	: New Infested : : Found 7/1/48 to : : 6/30/49 :	: Active Infesta- : tions as of : : 6/30/49 :	: Farm Properties Re- : leased as Weevil-Free : 7/1/37 to 6/30/49 :
Alabama	: 83	: 93	: 1,092
Florida	: 152	: 172	: 250
Georgia	: 62	: 61	: 394
Louisiana	: 1,645	: 2,884	: 3,122
Mississippi	: 81	: 79	: 1,092
South Carolina	: 3	: 3	: 57
Texas	: 97	: 87	: 2,916
Total	: 2,123	: 3,379	: 8,923

### 3. Mexican Fruitfly Control

- a. An intensive field inspection and trapping program was carried on to provide information needed to certify citrus fruit for movement into California. Present requirements provide that fruit from areas that are determined by inspection to be free from infestation may be shipped unsterilized to California from September 1 until January 31 of each year. After that date and for the remainder of the fruit-harvesting season, only fruit sterilized by the usual accepted method could be shipped from Texas to California. Through these arrangements, 356 carloads of the Texas oranges and grapefruit were shipped to California between November 1 and February 2, when the rapidly increasing movement of fruit was stopped on account of damage to the fruit by the cold weather.

### 4. Phony Peach and Peach Mosaic Eradication

In the 15 states where these peach virus diseases are present a combination of State and Federal effort attempts to prevent their dissemination in nursery stock by systematic nursery inspection methods, and to assist growers in the main commercial peach areas in avoiding orchard damage by the prompt detection and removal of diseased trees. In 1949 the nursery inspection phase covered 242 nurseries growing 2.3 million trees; orchard inspection was given to over 11 million trees. Additional protective inspection of a survey type was made of 187 nurseries and 36 budwood sources growing nearly 8 million trees and their environs outside the regulated areas.

#### Summary of Orchard Inspections - 1949

State	Inspections Made		Infections Found	
	Properties	Trees	Properties	Trees
<u>Peach Mosaic:</u>				
Arizona	8	61	7	8
California	16,032	497,794	570	2,527
Colorado	1,782	1,200,990	515	5,807
New Mexico	2	653	2	13
Oklahoma	585	19,013	6	6
Texas	9,946	548,918	171	352
Utah	1,407	113,352	19	69
<u>Phony Peach:</u>				
Alabama	1,833	356,099	478	11,455
Arkansas	702	1,373,076	44	107
Georgia	4,006	2,362,507	592	63,353
Louisiana	281	92,117	45	1,658
Maryland	17	12,000	0	0
Mississippi	8,277	140,233	175	2,270
Missouri	141	43,227	18	28
South Carolina	3,688	3,875,908	204	1,015
Tennessee	2,173	54,973	1	2
Texas	9,875	518,399	111	556
	60,755	11,209,320	2,958	89,226



## 5. Barberry Eradication

- a. Rust-spreading barberry bushes were removed from areas totaling 25,390 square miles in 225 counties within the 18 participating eradication states. This included reworking 18,271 square miles and initial work on 7,119 square miles. Nearly 13,000,000 barberry bushes were destroyed (See Table 1).
- b. On January 1, 1948 rework was behind schedule on approximately 46,000 square miles. Fruiting bushes had developed and re-seeded this territory. Accomplishments during the year reduced the reinfested areas by 8,000 square miles. The status of barberry eradication on December 31, 1948 is summarized in Table 2.
- c. Ammonium sulfamate and 2,4-D applied to cut stubs of barberry canes speeded up the eradication of planted bushes in the city of Spokane, Washington, and in the Spokane Valley. The use of these new chemicals in comparison with the old digging method showed a savings of about 10,000 man hours of labor on the work in this area.
- d. Permits were granted to 68 nurseries to ship barberry into the states protected by Federal Quarantine No. 38. These nurseries were inspected and found to be growing only approved resistant or immune stock.
- e. Destructive local epidemics of stem rust starting on barberry only occurred in Pennsylvania, Virginia and West Virginia. Stem rust was not of general economic importance in the barberry eradication states other than in these local areas. Losses of wheat, oats, barley and rye from stem rust have gradually decreased as control work has progressed as shown in the attached graph.

\*Berberis Fendleri A. Gray and B. canadensis Mill.

Table 2 - Status of Barberry Eradication through 1948

State	Square Miles			No. of Properties with Barberries			Barberries
	In Control	On Maintenance	Unworked or Requiring Rework	Cleared to date	On Maintenance	Requiring Work to date	
Colorado	74,685	72,097	2,588	2,836	1,570	1,266	20,922,005
Illinois	56,043	35,242	20,801	19,716	8,408	11,308	2,740,999
Indiana	36,045	29,593	6,452	6,947	5,282	1,665	403,658
Iowa	56,167	33,823	22,344	15,313	7,180	8,133	1,310,795
Michigan	57,481	50,746	6,735	18,112	10,679	7,433	6,646,754
Minnesota	80,883	45,401	35,482	8,949	4,790	4,159	1,002,515
Montana	146,316	145,613	703	665	388	277	50,530
Nebraska	77,268	68,697	8,571	4,815	4,221	594	147,030
North Dakota	70,183	68,754	1,429	1,077	1,028	49	39,498
Ohio	40,740	25,149	15,591	17,211	8,462	8,749	3,293,633
South Dakota	76,868	76,310	558	1,505	1,307	198	136,183
Wisconsin	54,852	37,322	17,530	17,213	5,997	11,216	5,679,717
Wyoming	94,487	94,427	60	139	122	17	5,662
Subtotal	922,018	783,174	138,844	114,498	59,434	55,064	42,378,979
Missouri	36,016	26,607	9,409	1,444	445	999	21,304
Pennsylvania	27,073	4,261	22,812	8,912	10	8,902	14,097,804
Virginia	11,821	2,648	9,173	4,190	-	4,190	160,757,131
Washington	32,662	7,200	25,462	6,836	8	6,828	106,057
West Virginia	14,296	9,927	4,369	2,071	-	2,071	146,177,477
Subtotal	121,868	50,643	71,225	23,453	463	22,990	321,159,773
Grand Total	1,043,886	833,817	210,069	137,951	59,897	78,054	363,538,752



6. Pink Bollworm and Thurberia Weevil Control

- a. Three new counties were found infested with the pink bollworm, all of which were in the general area of older infestations and two of the counties are of minor importance in cotton production.
- b. Negative inspections for the third successive season made it possible to release from the quarantine six counties in the Trinity Bay area of southeast Texas.
- c. The heat treating of the planting seed for the 1948 crop in Oklahoma, together with the sanitary practices enforced at the gins, apparently yielded excellent results as no pink bollworms were found in that state in 1948.
- d. Considerable improvement has been made in seed heating equipment at gins and oil mills and capacity for handling seed has been enlarged. Numerous incinerators for disposal of gin wastes have been constructed, especially in the northwest Texas and southwest Oklahoma counties brought under Federal regulation in 1948.
- e. Cooperation in meeting the stalk destruction dates in South Texas in the fall of 1948 was excellent, which resulted in the best cotton field cleanup in several years.
- f. Improvement in the procedures for use of methyl bromide as an alternate to the heat treatment for cottonseed has resulted in lowering the exposure time from 24 to 12 hours, thus increasing the capacity of the mills using this method of seed treatment without sacrificing any of the safety features.
- g. The cooperative work in Mexico has resulted in the development of the enforcement of control and quarantine requirements in Mexico similar to those in effect in the pink bollworm regulated areas in this country. The program in that area is on a firm basis. Insecticidal control of the pest being carried out by the Mexicans, particularly in the important cotton-growing Laguna area, is making rapid strides, and promises to materially reduce the infestation in that area.

7. Golden Nematode Control

- a. Extensive surveys outside Long Island, New York, have not revealed any infestation of the golden nematode. Surveys during the past fiscal year were completed in 22 southern, eastern and mid-western potato-growing states. In addition, surveys for the golden nematode were made in cooperation with other Bureau survey activities in eight of the potato-producing Pacific and Rocky Mountain States. Operations currently underway include inspections in the more important potato-producing areas in all States east of the Mississippi River. Special emphasis is being given to the collection of soil and debris at graders, shipping points and storage houses where white potatoes are concentrated in large quantities.

- b. As of July 1, 1949, golden nematode infestation has been found in 8,143 acres on Long Island, New York. Over 2,600 of those acres have been withheld from potato and tomato production by growers during the current crop year under the Federal-State compensation program. In addition, about 2,500 acres have been removed from cultivation and utilized for building and development purposes.
- c. Regulatory activities during the past fiscal year included supervision of the movement of approximately 300,000 cubic yards of topsoil, valued at an estimated one million dollars. This soil moved from infested sites within the quarantined area to limited non-agricultural destinations in Nassau County and New York City.
- d. Quarantine regulations for the 1948-49 potato shipping season permitted for the first time unrestricted movement of quarantined potatoes after compliance with washing or treating requirements. In order to meet the State quarantine requirements, local growers constructed a washing plant that represents an investment in excess of \$200,000 for the purpose of washing and treating local quarantined potatoes. A special vat was installed in one of the washing lines for use in applying a hot water treatment method developed by cooperating research agencies. Approximately 400,000 bushels of potatoes were moved under regulations from the quarantined area to approved destinations during the 1948-49 shipping season. Over 60,000 bushels of those potatoes were treated with hot water and moved without further restrictions.
- e. For the crop season 1948, \$401,015 was paid to growers for keeping land out of production. Of this amount \$181,289 was from Federal funds allotted from this appropriation and the remainder was paid by the State.

8. Citrus blackfly.

- a. Cooperation with National, State, and local officials in Mexico in the application of control measures in a limited number of the more heavily infested citrus groves has given encouraging results. As new or improved control procedures are developed by research, they are tested in this manner.
- b. Surveys have indicated some spread of citrus blackfly from known infested areas into northern Sonora and Lower California.
- c. Inspections have been intensified to delimit known areas of infestation as a basis for regulating or preventing movement of host material likely to carry infestation to new areas.

9. White-fringed Beetle Control

- a. Approximately 245,000 acres of rural and urban land in 8 southeastern states are known to be infested by the white-fringed beetle. States and individuals cooperate with the Bureau in suppression and prevention of spread.

Acres treated by soil and foliage applications for  
White-fringed Beetle Control October 1, 1948 to June 30, 1949

State	: DDT Soil Applications : (acres)	: DDT Foliage Applications : (acres)
Alabama	: 2,689	: 8,658
Florida	: 1,048	: 1,218
Georgia*	: 3,959	: 18,187
Louisiana	: 45	: 2,228
Mississippi	: 1,084	: 4,703
North Carolina	: 1,298	: 4,591
South Carolina	: 12	: 189
Tennessee	: 55	: 1,961
Total	10,190	41,735

\*12,136 Cubic feet of potting soil treated.

- b. Soil and Foliage Treatments. DDT soil application of 50 pounds per acre as a basis of certification for movement of plants from nurseries has been applied to additional nursery acreage during 1948-49 to destroy larvae of white-fringed beetle. Control efforts included 10 pounds DDT per acre soil applications to nearly 10,000 acres of agricultural land. An additional treatment of 25 pounds per acre for potting soil and greenhouse floor and bench soil was approved and used during the year. Biweekly foliage treatments were made by air and ground equipment around nurseries, greenhouses, and other points from which a hazard of adult beetle spread exists. States and growers furnish most of the insecticides and growers cultivate land to incorporate the DDT into the soil in the control program.
- c. Normal annual survey-inspection of the infested and adjacent States was extended in the spring of 1949 to include nearby areas of Tennessee and Arkansas due to the recent find in the vicinity of Memphis, and will include contiguous parts of Missouri, Kentucky, and Illinois during the summer of 1949.
- d. During the past two fiscal years a number of states beyond the infested area have assigned state inspectors for training work with Federal white-fringed beetle inspectors to acquire better knowledge of the insect and methods of inspection.



10. Hall Scale Eradication

- a. All known infested trees in the Chico and Oroville, California areas were fumigated for the second successive year during the winter of 1948-49 in cooperation with the state. Spot inspections revealed that a few scales can survive a single fumigation but no living scales have yet been found on trees fumigated more than once. Trees are to be released from treatment following freedom from live scales after three successive fumigations.
- b. As a result of removal of infested trees and intensive treatment of remaining nearby hosts, no further infestation has been found in the California Agricultural Experiment Station experimental orchard at Davis. One new infestation involving 10 properties containing 1,815 host trees in the vicinity of Bidwell Park, Chico, California was found in June 1949.
- c. Surveys in cooperation with State and local quarantine and regulatory officials failed to reveal any additional infestations in communities beyond Chico in California, and in Gulf Coast States to which host plants were known to have been shipped or might have been taken.

11. Transit Inspection

- a. Transit inspectors assisted in enforcement of Federal and state quarantines at strategic transfer points through which products move. Significant data in reference to these operations during the fiscal year 1949 follow:

No. of transit inspection stations operated.....	31
No. of shipments inspected.....	1,421,840
No. of Federal quarantine violations intercepted..	1,290
No. of infringements of state regulations reported.....	388
No. of insect pests and plant diseases intercepted	56

- b. Fifty-two shipments of dangerous cotton material which was moving from the area regulated under the pink bollworm quarantine were returned to shippers in Texas, New Mexico and Oklahoma; and dangerous seed cotton was intercepted and removed from picking sacks of itinerant cotton pickers leaving the infested area..

1944-1945

The first part of the report deals with the general situation in the country. It is noted that the country is in a state of economic crisis, with a severe shortage of food and other necessities. The government is unable to meet the needs of the population, and the situation is becoming increasingly desperate.

The second part of the report deals with the political situation. It is noted that the government is weak and corrupt, and is unable to carry out its duties. The population is dissatisfied with the government, and there is a growing movement for reform.

The third part of the report deals with the social situation. It is noted that the population is suffering from poverty and ill health. There is a high rate of unemployment, and the government is unable to provide adequate social services.

The fourth part of the report deals with the military situation. It is noted that the country is not adequately defended, and there is a risk of invasion. The government is unable to raise a sufficient number of troops, and the military is poorly equipped.

The fifth part of the report deals with the foreign situation. It is noted that the country is isolated, and has no allies. The government is unable to negotiate with the other major powers, and the country is at the mercy of its fate.

The sixth part of the report deals with the future of the country. It is noted that the country is in a state of crisis, and the future is uncertain. The government is unable to carry out its duties, and the population is suffering. The country needs a strong and effective government, and the population needs to be educated and organized.

(d) Foreign Plant Quarantines

Appropriation Act, 1950 .....	\$2,325,000
Anticipated pay adjustment supplemental .....	39,000
Base for 1951 .....	<u>2,364,000</u>
Budget Estimate, 1951 .....	2,618,000
Increase .....	<u>+254,000</u>

SUMMARY OF INCREASES, 1951

To provide additional inspection service to guard against introduction of citrus blackfly, oriental fruitfly, and other dangerous foreign pests into the United States .....	+147,000
To reduce infestations of oriental fruitfly around airfields and docks in Hawaii, in order to strengthen protection against the introduction into the mainland of this insect pest .....	+86,600
To place on a full-year basis in 1951, pay adjustments under P. L. 429 which were in effect for only a part of fiscal year 1950 .....	+20,400

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950 :(estimated)	Increase or Decrease		1951 :(estimated)
			P. L. 429 adjustment	Other	
1. Foreign plant quarantines .....	\$2,294,248	\$2,364,000	+\$20,400	+\$233,600(1)	\$2,618,000
Total pay adjustment costs, Public Law 429 .....	- -	[39,000]	[+20,400]	[+3,600]	[63,000]
Unobligated balance .....	5,807	- -	- -	- -	- -
Total available:	2,300,055	2,364,000	+20,400(2)	+233,600	2,618,000
Transfer in 1950 estimates from "Printing and binding, Department of Agriculture" .....	-8,055	- -			
Anticipated pay adjustment supplemental .....	- -	-39,000			
Total appropriation or estimate .....	2,292,000	2,325,000			



## INCREASES

The increase of \$254,000 in this item for 1951 is composed of the following:

(1) Increase of \$233,600 composed of the following:

(a) Increase of \$147,000 to provide additional inspection service to guard against introduction of citrus blackfly, oriental fruitfly, and other dangerous foreign pests into the United States.

Need for Increase: The growing threats of invasion by the citrus blackfly, oriental fruitfly, golden nematode, giant African snail, and many other injurious foreign pests which might cause serious damage to our agriculture if introduced, make it imperative that understaffed ports be adequately manned.

In recent years the citrus blackfly has spread through the important citrus areas of Mexico and is moving northward at an alarming rate. The heavily infested area of eastern Mexico is linked to ports of entry into the citrus zone of the Lower Rio Grande Valley of Texas by paved highways, and infested host plants, more than 140 of which have been reported in Mexico, can be transported to the Border in a matter of 3 or 4 hours. A similar situation exists on the west coast of Mexico where the citrus blackfly presents an increasing threat to the citrus industry of California. Its presence in Central America, India, Ceylon, Africa, China, and many other parts of the world make it necessary to guard against its entry at all ports, as well as those on the Mexican Border.

The effect the oriental fruitfly might have on the economy of California and other areas of the mainland has been demonstrated by its depredations in Hawaii where it attacks more than 100 hosts, including most of the important crops of the Island. While the primary threat is to California because of its geographical location with respect to Hawaii, planes from the Island can proceed directly to other points in the continental U.S.A; and ships from Hawaii go directly to Gulf Coast ports by way of the Panama Canal.

Plan of Work: Based on present and foreseeable workload, and on their strategic location with respect to known infestations of the citrus blackfly, oriental fruitfly, and other important foreign pests, it is proposed to augment the staffs of the ports listed below as follows:

BROWNSVILLE, HIDALGO, and LAREDO, TEXAS are particularly vulnerable because of their locations, the volume of tourists, and volume and nature of importations through these ports. The following additional personnel is needed:

Brownsville	4
Hidalgo	3
Laredo	2

MERCEDES, TEXAS (Thayer International Bridge). While not connected with the interior of Mexico by a paved highway, this port is located in the center of the rich agricultural area of the Lower Rio Grande Valley and a vast farming section is being developed on the adjacent Mexican side of the border. This port will gain in importance if the citrus blackfly continues its northward movement in Mexico. One inspector should be provided for that port.

EL PASO, TEXAS and NOGALES, ARIZONA. Importations of sour limes and other host material through these ports have resulted in frequent interceptions of citrus blackfly, fruitflies and other important pests. These importations are frequently consigned to California and other destinations where the pest in question might become established. To provide adequate protection one inspector should be added to the staffs of each of these ports.

EAGLE PASS, TEXAS. The undermanned staff of this port should be increased by one inspector to provide protection against the entry of citrus blackfly and pests from Mexico.

TAMPA and MIAMI, FLORIDA; NEW ORLEANS, LA.; MOBILE, ALA.; NEW YORK CITY, and SEATTLE, WASH. The inspection work load at these ports is greater than can be met with the present personnel. It is necessary to select inspection assignments on the basis of estimated results and to let some planes, boats, etc. pass without adequate inspection. Additional personnel is badly needed at these ports; as follows:

Tampa	1	Mobile	1
Miami	2	New York	5
New Orleans	2	Seattle	1

PUERTO RICO. As a result of present day air commerce Puerto Rico has become of primary importance as a strategic outpost in the plant quarantine program. In addition to the risk of direct flights carrying pests of Puerto Rico to the mainland, planes originating in other areas, including Cuba, Central and South America, stop at Puerto Rico enroute to the continental United States. If not safeguarded, these flights present a means of entry for such insects as the citrus blackfly, the Mediterranean fruitfly and other pests of Cuba and Latin America. Six inspectors are needed to strengthen the plant quarantine effort in Puerto Rico.

(b) Increase of \$86,600 to reduce infestations of oriental fruitfly around airfields and docks in Hawaii, in order to strengthen protection against introduction of this destructive insect pest into the mainland.

Need for Increase: . The present method of preventing the introduction of living adults of the oriental fruitfly into the mainland by airplanes departing from Hawaii consists of the application of insecticidal aerosols to the planes prior to loading and immediately prior to departure after loading. The aerosol used is the most effective one now known.



Experimental work shows, however, that it is not 100 percent effective in all tests. Its effectiveness is illustrated, however, by collection of dead adults from planes after treatment. To illustrate the importance of treating planes, during a recent month adult fruitflies were found, prior to treatment, in approximately 25 percent of the planes preparing to depart for the mainland.

Planes leaving Hawaii for the mainland may land at airfields in many sections of the United States, especially those in California. Military flights have extended even to Florida. High populations of the oriental fruitfly occur around air-ports in Hawaii. The tabulation given below shows the number of adults taken in traps on airfields.

Month		
<u>1949</u>	<u>Males</u>	<u>Females</u>
June	5,049	11,590
May	2,630	9,568
April	1,390	7,385
March	6,716	23,733
February	16,681	30,805
January	7,042	11,583
<u>1948</u>		
December	6,761	11,396
November	12,285	18,467
October	<u>4,974</u>	<u>7,075</u>
Total	63,528	131,602

It is well known that the flies around the airfields will move into the area from infested wild sections where guavas and other host plants are present in considerable numbers. It is known that flies may migrate considerable distances and these reservoirs of infestation provide a source for a continuing supply of adults. Information now available suggests that methods may soon be available for reducing populations of the flies. Such reductions would decrease the number of flies that would migrate to the airfield and thus reduce the hazard of their gaining entrance into aircraft. With this information available, it will be practicable to treat the airfield and its environs to reduce the population of flies. This, together with increased application of residual sprays to foliage and buildings at the airfield, should materially strengthen the precautions that can now be taken to prevent the hitch-hiking of the insects in planes.

The oriental fruitfly occurs in considerable numbers around docks where ships are being loaded and may thus light on ships which will move from Hawaii to the mainland. It is known that the adult fruitfly will live for a much longer time than that which is required for the movement of a ship from Hawaii to the mainland. It is important to apply appropriate sprays to areas around the docks to reduce the opportunity of flies gaining access to ships.



Plan of Work: Three entomologists would be added to the Honolulu staff to keep down the population of fruitflies around airports and docks, with seasonal assistants during peak periods of infestation. Two jeeps, equipped with sprayers, are needed to apply sprays to buildings and foliage around airports and docks. Treatment of wild guavas and other hosts in outlying areas would be applied by plane on a contract basis.

(2) Increase of \$20,400 to place on a full-year basis in 1951 pay adjustments under P. L. 429 which were in effect for only a part of fiscal year 1950.



# STATUS OF PROGRAM

Current Activities: Foreign plant quarantine work is conducted in all maritime and border states, and in Missouri, Alaska, Hawaii, and Puerto Rico. Work is performed in cooperation with Customs, Immigration, and Public Health Service personnel, and in California, Florida, Hawaii, and Puerto Rico with the active cooperation of the State, Territorial, and Insular plant quarantine services, respectively. The significance of the program lies in the protection it affords to American agriculture, horticulture, and forestry from further foreign pest entry, which endangers the agricultural productivity of this country.

## Examples of Recent Progress and Trends:

### 1. Air traffic inspection:

Prevention of introduction of plant pests through air commerce increases in importance. Planes were inspected at 51 locations (some with two or more airports) in 1949, four more than in 1948. At larger airports the schedules require work assignments on a 24-hour basis.

Contraband plant material intercepted from planes contained a relatively high percentage of pest infestation and evidences the importance of the problem. The well established practice of partial clearance of aircraft from abroad at successive landings, many at inland ports, rather than complete clearance at the first landing, not only adds to the work load but intensifies the problem. The increasing use of larger planes presents increasing periods of peak activity.

The following table gives comparative data for the last two fiscal years.

	F. Y. 1948	F. Y. 1949	% Deviation 1949 compared with 1948
Number planes inspected.....	57,756	65,106	+ 12.7
Number passengers on planes	1,159,788	1,191,856	+ 2.8
Number planes carrying prohibited plant material....	16,418	16,803	+ 2.4
Number interceptions of plant material from planes .....	37,728	43,057	+ 14.1

Important pest interceptions from air-borne traffic included:  
Citrus blackfly, East Indian pod borer, pink bollworm, Mediterranean fruitfly, Mexican fruitfly, West Indian fruitfly, various other species of destructive fruitflies, various species of whiteflies, mango weevil, a stem borer affecting broom corn; citrus canker, black spot of citrus,



sweet orange scab, spot anthracnose of apple and pear; golden nematode of potatoes, and nematodes attacking peas and wheat.

Aircraft departing from Hawaii for the mainland are given plant quarantine clearance immediately prior to departure to (1) prevent the spread to the mainland of injurious plant pests of Hawaii and (2) as part of the Government's general program of facilitating the movement of air commerce in which Customs, Immigration, and the Public Health Services participate. Aircraft are treated with an insecticidal aerosol of agricultural strength before loading and again with a lighter strength aerosol after loading and just before take-off.

The following table shows the volume of this work for the past two fiscal years. The decreases in 1949 are due in part to diversion of government-owned planes to the Berlin air-lift, strike conditions, and to the larger aircraft now in use.

Inspection in Hawaii of Air-borne Traffic  
Prior to Departure for Mainland

	1948	1949	% Deviation 1949 compared with 1948
Planes inspected.....	5,057	4,051	- 19.9
Pieces of baggage in- spected .....	262,826	234,986	- 10.5
Number of passengers ....	143,100	121,508	- 15.1
Number of packages of plant material in cargo.	14,518	32,289	+122.4
Number planes with un- authorized plant material .....	2,107	1,665	- 21.0

Similar preflight clearance of aircraft in Puerto Rico was inaugurated by the four cooperating Federal services on April 15, 1949 and is proving very acceptable to Puerto Ricans because it eliminates delays after arrival at destination. Such clearance is limited at present to commercial and Navy flights originating in the Island and all Air Force flights proceeding nonstop to the mainland. The public acceptance of preflight clearance is resulting in an increase in the number of requests for the service, and there are forecasts of a demand for an extension of the program to include foreign planes transiting Puerto Rico for nonstop movement to the mainland.

The following table shows this work load for the past two fiscal years.

	F. Y. 1948		F. Y. 1949		% Devia- tion 1949 compared with 1948
	On mainland	On mainland	On Puerto Rico be- ginning April 15	Total	
Planes inspected..	4,293	3,953	555*	4,508	+ 5.0
Passengers .....	95,075	92,066	21,293	113,359	+19.2
Pieces baggage inspected .....	175,437	193,796	33,293	227,089	+29.4

\* All planes (domestic and foreign) clearing Puerto Rico for nonstop flight to the mainland are treated prior to takeoff with an insecticidal aerosol.

## 2. Surface traffic inspection.

Plant quarantine clearance of surface traffic is also a major problem of increasing importance because of the volume of travel and the decreased baggage inspection by customs through increasing exemptions from duty for certain classes of passengers. No figures are maintained for the volume of passenger traffic over the borders of the country but as surface traffic and other such travel increases the plant quarantine problem of safeguarding against pest entry is intensified.

Aside from indicating the increasing volume of passenger traffic the following figures indicate the plant quarantine activity in surface traffic.

	F. Y. 1948	F. Y. 1949	% Deviation 1949 compared with 1948
Vessels arriving .....	46,094	44,068	- 4.4
Vehicles from Mexico ...	6,976,582	7,578,752	+ 8.6
Pullman and passenger coaches from Mexico....	3,745	3,342	- 10.8
Interceptions of un- authorized plant material from vehicles, trains, and pedestrians from Mexico .....	67,718	55,877	- 17.7

## Plant Importation

Foreign importations of plant material decreased in fiscal year 1949 as compared with 1948, as shown in the following tabulation. However, the total interceptions of unauthorized plant material for 1949 is more than twice the 1947 figure.

	<u>F. Y.</u> <u>1948</u>	<u>F. Y.</u> <u>1949</u>	<u>% Deviation 1949</u> <u>compared with 1948</u>
Foreign cargo importations			
- of plant material .....	64,107	46,676	- 27.1
Interceptions of unauthorized plant material in cargo .....	6,500	3,766	- 42.1
Freight cars inspected in México .....	73,892	68,013	- 8.0

Protection of the Southwest of the United States, particularly southern California, from the pests of Mexico. Rail traffic, with increasing airplane traffic, from the east and central part of Mexico to the west coast of Mexico presents a substantial threat of spread of plant pests particularly fruit flies to the United States via Lower California. The Bureau program inaugurated in 1949 for cooperation with Mexican official and grower interests to police the traffic from the Mexican mainland to Lower California is continuing in 1950. Under this program quarantines are enforced at interior points in Mexico through inspection of baggage and cargoes, car fumigation, etc.

Permit issuance, including amendments and cancellations, was a major clerical item of plant quarantine administration during 1949. Following the complete revision of Nursery Stock, Plant, and Seed Quarantine No. 37, existing permits were cancelled and new permits issued for importations under that quarantine, and materially increased the work load. The following table summarizes these activities:

	<u>F. Y.</u> <u>1948</u>	<u>F. Y.</u> <u>1949</u>	<u>% Deviation 1949</u> <u>compared with 1948</u>
Total permit actions .....	7,947	10,125	+ 27.4
Continuing permits in force as of June .....	8,100	6,623	- 18.23

#### Plant Exportation

Inspection and certification for export of American grown plant material to meet the sanitary import requirements of foreign countries continues to increase. The reduction in number of containers is largely due to decreases in the volume of exports of potatoes. The growth of this service is shown in the following table.



	<u>F. Y.</u> <u>1948</u>	<u>F. Y.</u> <u>1949</u>	<u>% Deviation 1949</u> <u>compared with 1948</u>
Export certificates issued ..	9,255	13,320	+ 43.9
Number containers certified for export .....	5,227,846	4,431,894	- 17.9

Receipts

Receipts of \$25,184 in 1949 resulted from the fee of \$4.00 a  
car charged for fumigating railroad cars entering this country  
from Mexico. This fumigation is required as a safeguard against  
the introduction of insects, primarily those attacking cotton.  
The estimated receipts from this source for 1950 are \$25,000.  
Such receipts are deposited in the general fund of the Treasury.



(e) Citrus Blackfly

The 1951 Budget estimates propose the transfer in estimates of this item to the subappropriations "Insect investigations" and "Insect and plant disease control". Therefore, the work formerly carried under the heading "Citrus Blackfly" is now included under items (b) Insect Investigations and (c) Insect and Plant Disease Control.

CHANGE IN LANGUAGE

The estimates include proposed elimination of the language of this item as follows. (deleted matter enclosed with brackets):

[Citrus Blackfly: For investigations of the citrus blackfly, during the fiscal year 1950, including cooperative tests of methods for its control in Mexico and cooperation with the Government of Mexico or local Mexican authorities in connection with the suppression, control, and prevention or retardation of spread of this pest, \$190,000.]

This change, deleting the language of the present subappropriation "Citrus Blackfly", is proposed in connection with the transfer in the estimates of this activity to the subappropriations "Insect investigations" and "Insect and plant disease control".

(over)



(f) Control of Emergency Outbreaks of Insects and Plant Diseases

Appropriation Act, 1950 .....	\$3,495,000
Activities transferred in 1951 Estimates to:	
"Control of Forest Pests, Department of Agriculture,"	
forest pest control act .....	-250,000
"Salaries and expenses, entomology and plant quaran-	
tine, Agricultural Research Administration," insect	
and plant disease control:	
White-fringed beetle control .....	-860,000
Hall scale eradication .....	-132,000
Base for 1951 .....	2,253,000
Budget Estimate, 1951 .....	2,500,000
Increase .....	+247,000

SUMMARY OF INCREASES, 1951

To advise farmers on how and when to protect their crops as	
a part of good farming practices .....	+50,000
To purchase control materials for use by farmers or cooperat-	
ing Federal-State-local agencies in areas where outbreaks	
of grasshoppers develop either on range or crop lands .....	+150,000
To conduct general surveys .....	+47,000

PROJECT STATEMENT

(Amounts shown include pay adjustment costs)

Project	1949	1950 :(estimated):	Program Increase	1951 :(estimated)
1. Grasshopper and Mormon				
cricket control .....	\$1,791,967	\$2,045,000	+\$200,000 (1)	\$2,245,000
2. General surveys .....	167,450	175,000	+47,000 (2)	222,000
3. Other control and ser-				
vice work:				
a. Chinch bug control..	10,718	11,000		11,000
b. Citrus canker survey:	17,950	12,000		12,000
c. Fire ant survey ....	2,786	10,000		10,000
Total pay adjustment costs,				
Public Law 429 .....	- -	[13,300]	- -	[20,000]
Unobligated balance .....	6,692	- -		- -
Total available .....	1,997,563	2,253,000	+247,000	2,500,000
Transfer to "Salaries and				
expenses, Office of In-				
formation, Department of				
Agriculture" .....	8,093	- -		
Transfer in 1951 Estimates				
to:				
"Control of Forest Pests,				
Department of Agricul-				
ture," forest pest con-				
trol act .....	- -	250,000		

(Continued on next page)

Project	1949	1950 :(estimated)	Program Increase	1951 :(estimated)
Transfer in 1951 Estimates:				
to: (Cont'd)				
"Salaries and expenses,				
entomology and plant				
quarantine, Agricultural				
Research Administration",				
insect and plant dis-				
ease control .....	394,344:	992,000:		
Total appropriation or				
estimate .....	3,000,000:	3,495,000:		

The 1950 Program: Based on information available at this time, emergency outbreaks of grasshoppers requiring extensive control efforts must be expected in (a) an area involving about one million acres in northwestern Nevada, southern Oregon, and northeastern California; (b) in an area not yet clearly defined in eastern Montana and adjoining counties in Western North Dakota extending about as far East as Minot; and (c) in an area involving the pan-handle counties of Texas and Oklahoma. In addition to these "outbreak areas," grasshoppers must be expected to continue increasing in numbers over large areas throughout the western part of the United States for at least one more season. The program for the remainder of the fiscal year 1950 therefore provides for continuing and expanding the modified crop protection program initiated in 1949, and for continuing Federal-State-local cooperative control work in areas where emergency outbreaks originating on semi-arid range or marginal lands threaten migration to high value crop areas. This work will involve widespread use of the newer insecticides, toxaphene, chlórdane, or others now under field test, applied as dusts or sprays directly to crops to be protected, or to vegetation along field margins, roadsides, on inter-mingled grasslands, canal banks, etc., in the more intensively farmed areas where the grasshoppers causing trouble are of local origin. Suppression of outbreaks of destructive species, including those with migratory tendencies which develop on lands not under cultivation, will be carried out under a cooperative arrangement which will involve joint financing of any work that is done, the Federal Government assuming approximately 50 percent of the cost.

Surveys recently completed indicate that supplemental funds will be needed in 1950 to cope with anticipated outbreaks.

#### INCREASES

The increase of \$247,000 in this item for 1951 consists of the following:

(1) Increase of \$200,000 under the project "Grasshopper and Mormon Cricket Control" to intensify two features of the cooperative control program as follows:

(a) Increase of \$50,000 for advising farmers on how and when to use the new facilities that are available to them for grasshopper control.



Need for increase: Based on developments of the past two years and preliminary reports on the results of the fall survey, it must be assumed that grasshoppers will continue to occur in outbreak numbers for at least two more years. Recent experience has demonstrated that chlordane, toxaphene and certain other insecticides recently released for public use give effective control of grasshoppers in cultivated crop areas, when properly and timely applied to field margins or adjacent idle lands. Farmers are encouraged to purchase and apply these materials either as sprays or dusts to protect their own crops from grasshoppers when only local infestations are involved. Relatively few agricultural advisers or farmers are familiar with the facilities that are now available. It is proposed therefore to assign technically trained men familiar with all phases of the grasshopper control program to areas where outbreaks develop for the purpose of demonstrating to county agricultural extension agents, other agricultural leaders, and farmers in affected areas the new and improved techniques and procedures which have proved so effective on a limited scale during the past two crop seasons. An important feature of this work will be to bring about coordination of the efforts of all individuals and agencies concerned, thus assuring community-wide participation in control programs.

(b) Increase of \$150,000 for the purchase and distribution of control materials for use in areas where outbreaks of grasshoppers develop on range or idle lands intermingled with crop lands.

Need for increase: During periods of epidemic infestations there are many conditions under which farmers are unable to protect their crops because of grasshoppers migrating from nearby waste, range, or other uncultivated lands. Often this includes public lands and property belonging to absentee owners. Interest in grasshopper control in such areas has been greatly stimulated by the availability of the newer insecticides that are increasing the efficiency of operations and resulting in greatly reduced cost of control. Until such time as the current outbreaks subside a steady expansion in control activities must be anticipated.

(2) Increase of \$47,000 under the project "General surveys" to strengthen surveys on European corn borer, boll weevil, and other insects.

Need for increase: The European corn borer is now generally distributed throughout the corn belt. Extensive damage has been caused by this pest during the current crop season. It is proposed therefore to increase and intensify corn borer surveys in cooperation with affected States as a service to farmers, and to industries furnishing the insecticides and the insecticide applicators. As a result of the severe outbreak of boll weevil and other insects that have occurred during the current crop season, the areas needing attention during the summer of 1950 will be considerably larger than during the current crop season.

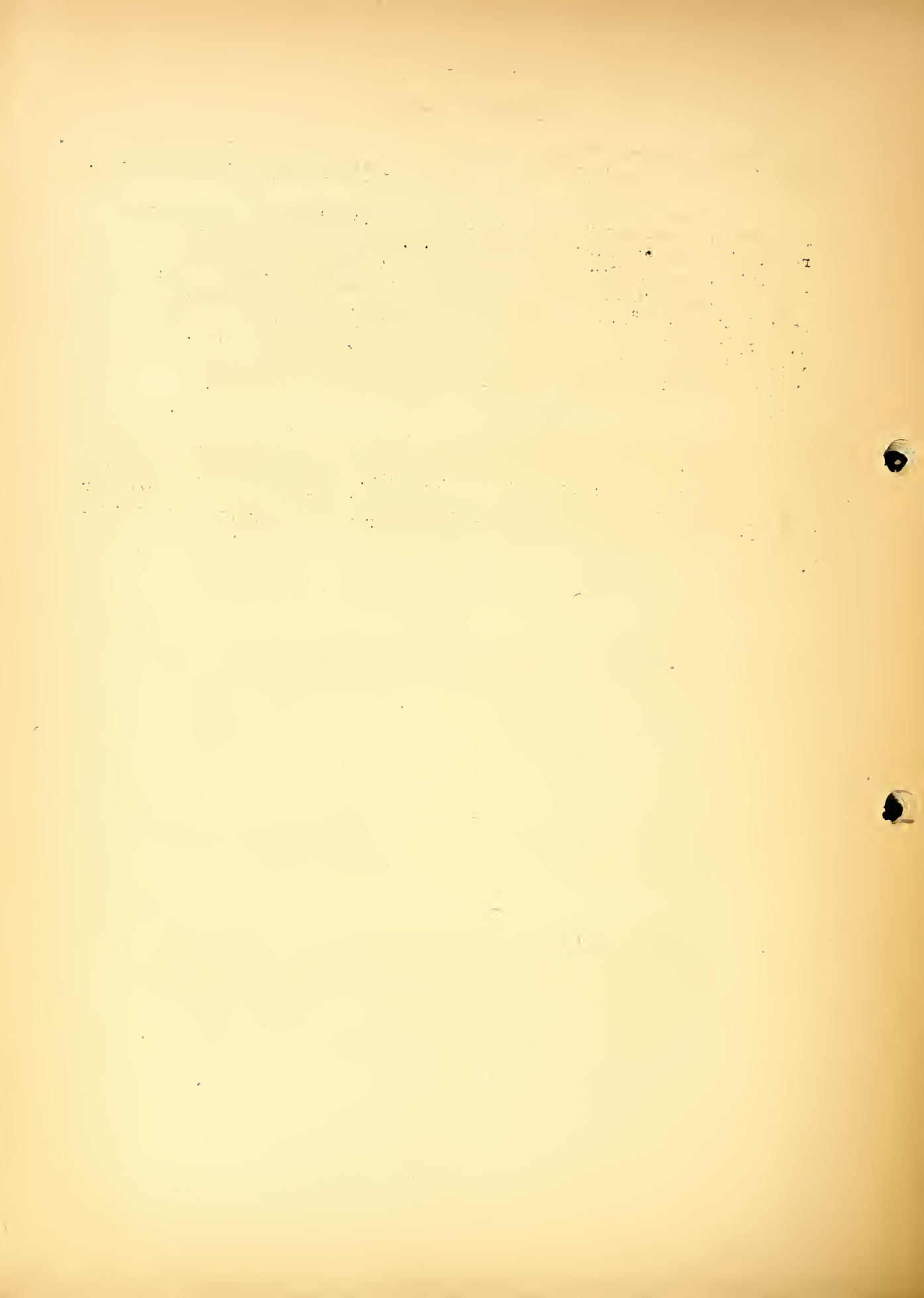


CHANGE IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored, deleted matter enclosed with brackets):

For expenses necessary to carry out the provisions of the joint resolution approved May 9, 1938 (7 U.S.C. 148-148e) [and the provisions of the Forest Pest Control Act (\$250,000 which may be transferred to and made a part of the appropriation "Forest Pest Control Act"),] including the operation and maintenance of airplanes and the purchase of not to exceed three, and surveys and control operations in Canada in cooperation with the Canadian Government or local Canadian authorities, and the employment of Canadian citizens, [\$1,745,000] \$2,500,000.

The change in language is proposed to delete the provision contained in the 1950 Agricultural Appropriation Act authorizing a transfer of \$250,000 to the appropriation "Forest Pest Control Act". Retention of this provision is no longer necessary since the 1951 estimates propose a transfer in the estimates of this amount to the appropriation "Forest Pest Control Act".



## STATUS OF PROGRAM

Current Activities: Under this item flexible year-to-year programs are carried out as required for the control of incipient and emergency outbreaks of insects and plant diseases that present serious threats to agriculture. The various projects are in general handled on a crop season basis in response to urgent needs. The more important activities now being carried on are (1) cooperation with States to control grasshoppers and Mormon crickets, (2) surveys to detect the status and occurrence of insect pests.

### Examples of Recent Progress and Trends:

#### Grasshopper Control

##### In Crop Areas:

During 1949, it is estimated that farmers and ranchers treated very effectively more than 2,800,000 acres of land in crop areas with toxaphene, chlordane, and benzene hexachloride, or more than twice the acreage treated with such materials the previous year.

During 1948 more than 46,000 farmers and ranchers spread standard bait mixtures containing sodium fluosilicate on approximately 3,200,000 acres of crop land or adjacent infested areas. Due to the popularity and increased effectiveness of the newer insecticidal formulations, it is estimated there may have been some reduction in acreage treated with the standard mixtures in 1949.

According to preliminary estimates the cooperative grasshopper control program saved at least \$55 worth of crops for every dollar spent by County-State-Federal agencies on crop areas during 1949, exclusive of farmer labor and services for baiting.

Specially devised equipment designed to apply the newer insecticides in sprays or dusts was rather extensively used by farmers during 1949, although there is a recognized need for further demonstration of such equipment and materials before the new control procedure will be generally accepted.



On Rangelands

The objectives of grasshopper control were:

1. To protect range vegetation from destruction or depletion.
2. To prevent migrations to important crop-producing areas.

The important features of this program in the heavily infested rangelands of Montana and Wyoming were:

- a. As of August 3, 1949, 2,867,000 acres were treated by aircraft with dry bait formulations containing toxaphene or chlordane.
- b. As a direct result of such treatment major migrations did not occur thus affording protection to croplands by preventing flights such as those which occurred in the late 1930's, and which caused tremendous losses to valuable crops, particularly grains. Grasshopper populations were drastically reduced in the treated area. Complete results of surveys are not yet available.
- c. The cost of control on this acreage was shared by the cooperators on the following approximate basis: Federal funds 50%; State appropriations 25%; County appropriations 15%; contributions from owners or operators of infested rangelands 10%. In addition many ranchers assumed the entire cost of bait applications on their properties.
- d. One Bureau-owned airplane (DC3 type) especially equipped with a new type of distributing device using air velocity to dispense dry-bait treated approximately 380,000 acres of range lands during the 1948-49 crop season at an overall acreage cost of 17 cents. Other Bureau-owned and Bureau-contract and rancher-contract airplanes and ground equipment were used in the more than 3,000,000 acres range program.

From September 1 to 10, 1949, 25,767 acres of range land in Arizona were treated by Bureau-owned aircraft at a cost of approximately \$16,685. Of this amount State and local agencies expended \$8,343. The infestation was of an incipient and spotty nature. Normal build-up of infestation in this treated area and adjacent areas appears to have been greatly retarded.

### Mormon Cricket Control

During the 1948-49 crop season only a very limited amount of control was needed to combat the few incipient and localized infestations that developed in or adjacent to crop areas in Colorado, Nevada, and Washington. No control was needed in other States.

### Chinch Bug Control

Weather conditions kept chinch bugs from becoming a major problem in 1948 and 1949. Local damaging infestations were troublesome in a few counties of several States. Limited quantities of Federally provided materials were used by farmers to combat the bugs.

### Citrus Canker Survey

No citrus canker was found during the two-year resurvey begun in 1947. A much needed similar resurvey in Louisiana, where the disease formerly existed and in which that State desires to participate, has not been made. It is planned to initiate surveys in this State during the fiscal year 1950. In co-operation with the State all previously infected and adjacent properties in Texas were inspected for this destructive citrus disease. Inspection was extended to uncultivated areas in the State and to a part of Arkansas, when it was suspected that infections might be established.

### Potato Rot Nematode Survey

After conferences with the Western and National Plant Boards a preliminary cooperative Federal-State survey was made of stored potatoes in the spring of 1949 for the potato rot nematode in California, Colorado, Idaho, Montana, Nevada, Oregon, Utah, and Washington. The western survey supplemented similar searches in eastern areas where Prince Edward Island seed stock had been distributed in former years. In neither of these limited surveys in the main northern potato areas of the United States was any new infestation of the rot nematode discovered. About 4.5% of the total 1948 western potato production was examined. Included in the observations were potatoes from 1024 farms in 66 counties of the 8 States.

### Other Surveys

In Cooperation with State agencies, industry groups and others, several different surveys have been continued. The pests covered include: cotton insects, insects attacking deciduous fruits, insect pests of vegetables and similar crops including tobacco, hessian fly, corn borer, and screwworm. The purpose of these surveys is to develop current data on status and distribution of important pests and information on the availability of insecticides in areas where they are needed. The data is pooled, summarized and made currently available--usually weekly during active seasons--to extension agencies to aid in advising farmers and to the industry to aid in the distribution of insecticides and spraying and dusting equipment to the areas where needed and where they will be used by the farmers. These activities have been of increasing value and are closely followed by farmers and industry. They have done much to assure that supplies are available when and where needed and to guide farmers on when to protect crops to prevent losses. Most of the weekly reports on insect infestations are sent to as many as 1,000 individuals and concerns. The interest and cooperation by State agencies and others are increasing.



BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

Functional Summary of RMA Projects Carried Out Under Title II

Functional Classification	1949	1950 :(estimated)	Adjustments for 1951 P.L. 429	1951 (estimated)
MARKETING RESEARCH AND SERVICES				
IV. <u>Improvement in preparation and handling of farm products:</u>				
e. Improved storage and conditioning of farm products .....	\$66,335	\$69,300	<del>\$400</del>	\$69,700
f. Quality preservation in marketing channels....	18,921	29,400	+ 200	29,600
Total, Title II, RMA .....	85,256	98,700	+ 600	99,300

1. The first part of the paper is devoted to a general discussion of the problem. It is shown that the problem is of great importance in the theory of differential equations and has been studied by many authors. The main results of the paper are summarized in the following theorem.

THEOREM 1. Let  $f(x)$  be a function defined on the interval  $[a, b]$  and satisfying the conditions

1.  $f(x)$  is continuous on  $[a, b]$ ;  
2.  $f(x)$  is differentiable on  $(a, b)$ ;  
3.  $f'(x)$  is continuous on  $(a, b)$ ;

then the function  $f(x)$  is a solution of the differential equation

$$y' = f(x)$$

if and only if it satisfies the initial condition

$$y(a) = y_0$$

where  $y_0$  is an arbitrary constant.

Proof. Let  $y(x)$  be a solution of the differential equation

$$y' = f(x)$$

$$y(a) = y_0$$

$$y(b) = y_1$$

$$y(c) = y_2$$

$$y(d) = y_3$$

$$y(e) = y_4$$

$$y(f) = y_5$$

$$y(g) = y_6$$

STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS, WORKING FUNDS, AND TRUST FUNDS

(Amounts Shown Include Pay Adjustment Costs)

Item	Obligations, 1949	Estimated obligations, 1950	Estimated obligations, 1951
<u>Control of Forest Pests, Department of Agriculture (Bureau of Entomology and Plant Quarantine):</u>			
White Pine Blister Rust:			
Leadership, coordination, and technical direction of white pine blister rust control .....	\$727,908	\$752,400	\$763,700
Blister rust quarantine enforcement .....	14,987	15,500	15,600
Cooperative blister rust control on State and privately-owned lands .....	442,521	407,700	1,058,200
Total, White pine blister rust ..	1,185,416	1,175,600	1,837,500
Gypsy and brown-tail moths .....	617,258	585,000	613,500
Forest Pest Control Act .....	39,057	594,081	1,006,500 a/
Total, Control of Forest Pests ....	1,841,731	2,354,681	3,457,500

Research and Marketing Act of 1946  
Department of Agriculture (Bureau  
of Entomology and Plant Quarantine):

(Title I, Sec. 10a): Utilization research .....	123,138	136,100	137,700
(Title I, Sec. 10b): Research other than utilization research ...	247,564	376,600	381,700
(Title II): Marketing research and service .....	85,256	98,700	99,300
Total, Research and Marketing Act	455,958	611,400	618,700

Special Research Fund, Department of  
Agriculture (Bureau of Entomology  
and Plant Quarantine):

Special entomological research deal- ing with "investigations of the properties of bee disease orga- nisms and bee products" .....	10,331	11,200	11,300
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Working Funds, Agriculture, (Bureau  
of Entomology and Plant Quarantine)  
Advanced from:

Department of the Army:

For investigations and the develop- ment of control measures on in- sects and other arthropods of importance to the Department of Defense .....	214,902	118,328	-
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a/ Figures for 1949 and 1950 exclude allocations to Forest Service in 1949 and 1950 and to Bureau of Plant Industry, Soils, and Agricultural Engineering in 1950. The 1951 amount reflects total estimate pending determination of amount to be allocated to other agencies.



Item	Obligations, 1949	Estimated obligations, 1950	Estimated obligations, 1951
<u>Working Funds, Agriculture, (Bureau of Entomology and Plant Quarantine)</u> <u>Advanced from: Cont.</u>			
<u>Housing and Home Finance Agency:</u>			
For making tests and continuing research on building materials and systems intended to facilitate the Veterans' Emergency Housing Program:	94	- -	- -
<u>Forest Service, Department of Agriculture:</u>			
White pine blister rust control ..	32,202	- -	- -
<u>Department of the Navy:</u>			
For investigations and the develop- ment of control measures on in- sects and other arthropods of importance to the Department of Defense .....	59,244	35,078	- -
To cover expenses of providing tech- nical assistance to the Department of the Navy on quarantine and insect control problems in Guam and the Pacific mandated islands .....	9,798	- -	- -
<u>Department of the Air Force:</u>			
For investigations and the develop- ment of control measures on in- sects and other arthropods of importance to the Department of Defense .....	86,027	13,973	- -
<u>Interior Department:</u>			
Ribes eradication work .....	- -	489	- -
Total, Working Funds .....	402,267	167,868	- -
<u>Miscellaneous Contributed Funds,</u> <u>Department of Agriculture (Bureau of</u> <u>Entomology and Plant Quarantine):</u>			
Trust fund deposited by cooperators for cooperative work on blister rust control and barberry eradication .....	208,189	248,274	239,541
TOTAL, OBLIGATIONS UNDER ALLOTMENTS, WORKING FUNDS, AND TRUST FUNDS .....	2,918,476	3,393,423	4,327,041

## PASSENGER MOTOR VEHICLES AND AIRCRAFT

### Passenger Vehicles

The request for 63 replacements is in line with the Bureau's program to replace each year those cars which are old and hazardous or uneconomical to operate. During the fiscal year 1949, the Bureau replaced 47 passenger-carrying cars and 47 cars are planned for replacement in 1950. The 63 vehicles proposed for replacement in 1951 represent approximately 20 percent of the passenger vehicles operated. The cars to be replaced will be 1943 or earlier models, or will have mileage in excess of 60,000 miles.

All replacements are needed since adequate transportation facilities are necessary to the efficient conduct of the Bureau's work. Many of the cars are used to reach numerous points where public transportation is inadequate. Rough country roads subject the cars, in some cases, to hard usage. The fleet is widely dispersed over the United States.

### Airplanes

Two additional planes and four replacements are needed to apply insecticides from the air. One additional plane will be used on the pink bollworm project, where recent experimental use of aircraft indicates the effectiveness of applying insecticides from the air for the control of this pest. One additional small plane is needed for use in properly supervising aircraft operations in widely separated work areas in connection with the grasshopper control program. It is anticipated that four planes will need to be replaced. Two of these planes now in use on white fringed beetle work are obsolete types and may require unduly large expenditures to continue them in safe operating condition. In such an event two replacements will be needed. However, the purchase of these planes will not be made if it is found practicable and economically feasible to make necessary repairs. Two planes are needed for use on the grasshopper control program to replace two obsolete models.

The effectiveness of spreading insecticides by plane has been demonstrated on several of the control programs. During the 1949 season more than 3,000,000 acres were treated by aircraft with very effective results. Rapidity and timeliness of application are vitally important factors.





BUREAU OF AGRICULTURAL AND INDUSTRIAL CHEMISTRY

Purpose Statement

The Bureau of Agricultural and Industrial Chemistry as now constituted was established in 1943, continuing research work conducted for many years by predecessor organizations. A Bureau of Chemistry existed in 1901 and the Congress had appropriated funds for chemical analyses of agricultural products as early as 1848.

The Bureau conducts investigations and experiments in the fields of chemistry and related physical sciences, technology, and chemical engineering on problems related to the conservation and industrial utilization of agricultural commodities and wastes for foods, feeds, drugs, and nonedible products.

Four regional research laboratories, one in each of the major farm producing areas, provide facilities for investigations to develop new and expanded industrial and food uses for the principal farm commodities of their respective regions:

Southern Laboratory  
New Orleans, Louisiana

Cotton, peanuts and  
other oil seeds, and  
sweetpotatoes

Western Laboratory  
Albany, California

Fruits, vegetables,  
poultry products,  
alfalfa, and wheat

Eastern Laboratory  
Wyndmoor, Pennsylvania

Apples and other fruits  
vegetables, potatoes  
tobacco, milk products,  
animal skins, hides  
and tanning materials,  
animal fats and oils

Northern Laboratory  
Peoria, Illinois

Corn, wheat, and other  
cereals, such as oats,  
rye and barley, soybeans  
and other oilseeds, and  
agricultural residues.

This decentralized operation also facilitates contact with food processors and other industry groups. In 15 other units of the Bureau applied research is being directed toward the problems of processing and utilizing the products and byproducts of pine gum, tung nuts, sugar plants, and citrus and other fruits the preservation of vegetables by brining or fermentation. Fundamental research is conducted on the nature and control of enzyme action, on the toxic and other physiological effects of substances that might be considered for medicinal uses or that contaminate or exist in foods and feeds, on substances that exhibit special biological activity in or toward plants, and on the survival of pathogenic micro-organisms in processed foods.

Employment as of November 30, 1949 was 1577 of which 66 were in the headquarters office in Washington, and the balance in the field.

	<u>Estimated 1950</u>	<u>Budget Estimate, 1951</u>
Appropriated funds	\$5,728,525	\$5,807,000

Proposed Consolidation of Subappropriations

The Budget estimates propose the consolidation of the current sub-appropriations "Agricultural Chemical and Naval Stores Investigations" and "Regional Research Laboratories" into a single mainhead appropriation "Salaries and Expenses, Agricultural and Industrial Chemistry, Agricultural Research Administration". This proposal would simplify the appropriation structure and the administrative functions of the Bureau, and would in no way affect the scope or nature of the work being conducted. The following table compares the existing appropriation and project structure for these items with that proposed in the 1951 Budget estimates:



# BUREAU OF AGRICULTURAL AND INDUSTRIAL CHEMISTRY

## Distribution of Estimated Available Funds Fiscal Year 1950 on Basis of Proposed Consolidated Appropriation Structure

Item	Cereal & Forage	Cotton & Other Fiber	Fruit & Vegetable	Oilseed	Sugar & Special	Poultry	Dairy & Animal	Agri. Res.	Total
	Invest.	Invest.	Invest.	Util.	Util.	Util.	Inv.	Util.	Inv.
AGRICULTURAL CHEMICAL AND NAVAL STORES INVESTIGATIONS	\$60,565	\$8,395	\$249,955	\$44,181	\$243,071	\$49,758		-	\$655,925
REGIONAL RESEARCH LABORATORIES:									
Southern Regional Research Laboratory	-	828,336	121,307	309,880	-	-		-	1,259,523
Western Regional Research Laboratory	156,733	-	905,304	-	-	214,467		-	1,276,504
Eastern Regional Research Laboratory		-	350,741	-	299,098	624,870		-	1,274,709
Northern Regional Research Laboratory	670,998	-	-	297,564	-	-		293,302	1,261,864
Total, Regional Research Laboratories	827,731	828,336	1,377,352	607,444	299,098	839,337		293,302	5,072,600
TOTAL ESTIMATED AVAILABLE:	888,296	836,731	1,627,307	651,625	542,169	889,095		293,302	5,728,525

Proposed Consolidation of Subappropriations

The Budget estimates propose the consolidation of the current sub-appropriations "Agricultural Chemical and Naval Stores Investigations" and "Regional Research Laboratories" into a single mainhead appropriation "Salaries and Expenses, Agricultural and Industrial Chemistry, Agricultural Research Administration". This proposal would simplify the appropriation structure and the administrative functions of the Bureau, and would in no way affect the scope or nature of the work being conducted. The following table compares the existing appropriation and project structure for these items with that proposed in the 1951 Budget estimates:

# BUREAU OF AGRICULTURAL AND INDUSTRIAL CHEMISTRY

## Distribution of Estimated Available Funds Fiscal Year 1950 on Basis of Proposed Consolidated Appropriation Structure

Item	Cereal & : Forage : Crops Util.: Invest. :	Cotton & : Other Fiber: : Crops Util.: Invest. :	Fruit & : Vegetable : Utilization: : Invest. :	Oilseed : Util. : Invest. :	Sugar & : Special : Plants : Util. Inv.:	Poultry : Dairy & : Animal : Products : Util. Inv.:	Agri. Res. : Util. : Invest. : Total :
AGRICULTURAL CHEMICAL AND: NAVAL STORES INVESTIGA- TIONS .....	\$60,565	\$8,395	\$249,955	\$44,181	\$243,071	\$49,758	\$655,925
REGIONAL RESEARCH LABO- RATORIES:							
Southern Regional Re- search Laboratory ...:	-	828,336	121,307	309,880	-	-	1,259,523
Western Regional Re- search Laboratory ...:	156,733	-	905,304	-	-	214,467	1,276,504
Eastern Regional Re- search Laboratory ...:		-	350,741	-	299,098	624,870	1,274,709
Northern Regional Re- search Laboratory ...:	670,998	-	-	297,564	-	-	293,302
Total, Regional Re- search Laboratories:	827,731	828,336	1,377,352	607,444	299,098	839,337	5,072,600
TOTAL ESTIMATED AVAILABLE:	888,296	836,731	1,627,307	651,625	542,169	889,095	5,728,525



Salaries and Expenses

Activities transferred in 1951 estimates from:

"Salaries and expenses, Agricultural and Industrial Chemistry, Agricultural Research Administration"	
Agricultural Chemical and Naval Stores Investigations .....	
	\$+655,925
Regional Research Laboratories .....	
	+5,072,600
Base for 1951 .....	
	5,728,525
Budget Estimates, 1951 .....	
	5,807,000
Increase .....	
	<u>+78,475</u>

PROJECT STATEMENT  
(Amounts Include Pay Adjustment Costs)

Project	1949	1950 (estimated)	P. L. 429 adjustment	1951 (estimated)
1. Cereal and forage crops utilization investigations ....	\$902,813	\$888,296	+\$19,515	\$907,811
2. Cotton and other fiber crops utilization investigations	865,701	836,731	+14,186	850,917
3. Fruit and vegetable utilization investigations .....	1,671,659	1,627,307	+13,398	1,640,705
4. Oilseed utilization investigations ....	664,032	651,625	+13,613	665,238
5. Sugar and special plants utilization investigations (including pine gum, tobacco, tanning materials, wild plants, etc.).....	533,903	542,169	+2,589	544,758
6. Poultry, dairy and animal products utilization investigations .....	909,113	889,095	+7,027	896,122
7. Agricultural residues utilization investigations .....	297,313	293,302	+8,147	301,449
Total pay adjustment costs, Public Law 429 .....	[ - - ]	[101,600]	[+43,875]	[145,475]

(Continued on next page)

Project	1949	1950 :(estimated)	P.L. 429 : adjustment	1951 :(estimated)
Unobligated balances .....	110,921:	- -:	- -:	- -
Total available .....	5,955,455:	5,728,525:	78,475(1):	5,807,000
Transfer in 1950 estimates	:	:	:	:
from "Printing and bind-	:	:	:	:
ing, Department of Agri-	:	:	:	:
culture" .....	-18,505:	- -:	:	:
Anticipated pay adjustment	:	:	:	:
supplemental .....	- -:	-67,000:	:	:
Total appropriation or	:	:	:	:
estimate .....	5,936,950:	5,661,525:	:	:

# INCREASES

(1) An increase of \$78,475 in this item for 1951 consisting of (1) \$43,878 to place on a full-year basis in 1951 pay adjustments under P.L. 429 which were in effect for only a part of the fiscal year 1950 and (2) \$34,600 to provide in 1951 a portion of pay adjustment costs which are being met with in available funds in 1950.

# BUREAU OF AGRICULTURAL AND INDUSTRIAL CHEMISTRY

## ALTERNATE PROJECT STATEMENT

Project	1949	1950 : Estimated :	Increase (+) or Decrease (-)	1951 : Estimated :	1951				Grand Total
					RMA				
					Estimated:	Section : 10(a)	Section : 10(b)	Total	
1. Cereal and forage crops: utilization investi- gations .....	\$902,813	\$888,296	+\$19,515	\$907,811	\$597,166	-	\$597,166	\$14,600	\$1,519,577
2. Cotton and other fiber crops utilization in- vestigations .....	865,701	836,731	+14,186	850,917	509,500	-	509,500	14,600	1,375,017
3. Fruit and vegetable utilization investi- gations .....	1,671,659	1,627,307	+13,398	1,640,705	668,417	-	668,417	14,700	2,323,822
4. Oilseed utilization investigation .....	664,032	651,625	+13,613	665,238	606,917	-	606,917	-	1,272,155
5. Sugar and special plants utilization in- vestigations (includ- ing pine gum, tobacco, tanning materials, wild plants, etc.)....	533,903	542,169	+2,589	544,758	229,700	20,600	250,300	-	795,058
6. Poultry, dairy and animal products utili- zation investigation..	909,113	889,095	+7,027	896,122	183,200	-	183,200	12,400	1,091,722
7. Agricultural residues utilization investi- gations .....	297,313	293,302	+8,147	301,449	-	-	-	-	301,449
Total pay adjustment costs:									
Public Law 429 .....	[ - ]	[101,600]	[+43,875]	[145,475]	[59,400]	[600]	[60,000]	[1,200]	[206,675]
Unobligated balance ....	110,921	-	-	-	-	-	-	-	-



Project	1949	1950 Estimated:	Increase (+) or Decrease (-)	1951 Estimated:	1951			Special: Research:	Grand Total
					RMA	Section: 10(a)	Section: 10(b)	Fund	
Total available .....	5,955,455	5,728,525	+78,475	5,707,000	2,794,900	20,600	2,815,500	56,300	8,678,800
Transfer in 1950 esti- mates from "Printing and binding, Department of Agriculture" .....	-18,505								
Anticipated pay adjust- ment supplemental .....	-	-67,000							
Total appropriation or estimate .....	5,936,950	5,661,525							

Finan- cial Project: No.	RMA Project: No.	Project Title	1949	1950 (estimated)	Adjustments for 1951 P.L. 429: Contract: Other	1951 (estimated)
1.	✓ 21	Section 10(a) Utilization research: Develop new and improved uses for rice and rice byproducts and better methods of storing and processing rice.....	60,830	102,550	✓1,950 -40,000 -	64,500
1.	✓ 127	Developing industrial and other out- lets for grain (alcohol, fuels, vita- mins, etc.) and evaluation of the de- velopment of motor fuels in experi- mental and full-scale engines.....	209,860	287,150	✓1,750 -485,000 -	373,900
1.	135	Determine physical and chemical changes causing flavor deterioration and staling of bakery products.....	-	20,000	- -20,000 -	-
1.	✓ 155	Plant scale research to apply new processes for the industrial utiliza- tion of cereal grain.....	-	28,000	- -425,000 -	53,000
1.	188	Development of feed and other uses for byproducts from grain and other crop adjuncts to alcohol production	22,918	20,200	✓ 300 -	20,500
1.	336	Preservation and carotene and other nutrients in feedstuffs and cereal products .....	7,972	20,300	✓ 600 -424,000 -	44,900
2.	102	Fundamental characteristics of cotton fiber as a means of developing en- tirely new uses.....	97,014	168,050	✓4,550 -20,000 -	152,600

(continued on next page)

Finan- cial Project:	RM	Project Title	1949	1950 (estimated)	Adjustments for 1951	1951 (estimated)
No.	No.				P.L. 429 : Contract : Other :	
		Section 10(a) Utilization research:				
2.	104	Development of new and improved pro- ducts from cotton fibers through pro- cessing and chemical treatment.....	186,829	267,100	46,400	273,500
2.	141	Study of fundamental characteristics of wool and mohair fibers as a means of developing new and improved uses....	106,276	60,650	41,250	61,900
2.	372	Develop improved methods of cleaning and scouring wool to yield improved fiber.....	20,639	21,450	4 50	21,500
2.	125	New and improved uses of deciduous fruits especially to prevent waste.....	58,928	85,200	4 500	144,700
3.	140	New and improved uses of citrus products.....	124,235	154,450	41,550	136,000
3.	504	Development of a method to measure bitter principles in orange juice.....	—	10,100	4 100	10,200
3.	67	Development of new and improved food, feed and industrial uses for dried beans and peas, and splits and hulls therefrom.....	43,320	42,600	4 400	43,000
3.	166	A-Conversion of potatoes to more stable forms and products. B-New methods of using potatoes for feeds and nonfood uses.....	66,887	71,100	4 700	71,800
3.	241	Development of a method for measuring the raw stock maturity in frozen peas..	21,197	11,200	4 100	11,300

(continued on next page)



Finan- cial Project No.	RMA Project No.	Project Title	1949	1950 (estimated)	Adjustments for 1951	1951 (estimated)
		Section 10(a) Utilization research:				
3	307	Conversion of vegetable and animal byproducts, surpluses and wastes in- to new feedstuffs and the establis- ment of their feeding values .....	29,513	50,850	+450	51,300
3	421	Temperature requirements in the com- mercial transportation and ware- housing of frozen foods .....	20,870	96,250	+650	96,900
3	505	Study of fundamental characteristics: of fruit tannins with a view to avoiding darkening and off-flavor development in preparation and storage of processed fruit .....	- -	15,200	+100	15,300
3	519	Fundamental study of factors that influence texture in processed berries as a means of developing improved processing techniques ....	- -	15,150	+150	15,300
3	146	Submerged fermentation production of: edible mushroom mycelium from agri- cultural wastes .....	18,148	16,400	+100	16,500
3	520	Development of improved instruments for rapid measurement of moisture and color of fruits, vegetables, and nuts, raw and dehydrated .....	- -	17,300	+100	17,400
4	103	Development of new and improved products from cottonseed and other cotton byproducts .....	127,723	174,050	+4,150	161,200

(Continued on next page)

Financial Project No.	Project Title	1949	1950 (estimated)	Adjustments for 1951			1951 (estimated)
				P.L. 429	Contract	Other	
4	Section 10(a) Utilization research: Quality improvement of peanut products and new uses for peanut oil.	42,320:	55,000:	+1,300:	- -	- -	56,300
4	556 Expanded research on fats and oils.	- -	199,400:	+2,400:	+17,000:	- -	218,800
4	128 Fundamental studies on the flavor stability of soybean oil .....	54,563:	74,050:	+850:	- -	- -	74,900
4	270 Develop new and expanded uses for soybean proteins .....	23,994:	23,400:	+200:	- -	- -	23,600
4	339 Fundamental studies on composition and modification of soybean lecithin:	6,002:	18,100:	+100:	- -	- -	18,200
4	517 Studies on fermentation of oilseeds and cereals in the production of food products .....	- -	15,100:	+400:	- -	- -	15,500
4	501 Tung meal utilization investigations:	- -	- -	- -	- -	b/ +13,500:	13,500
5	100 Pilot plant production of gum naval stores derivatives .....	21,901:	25,000:	+600:	- -	- -	25,600
5	373 Sugar technology investigations ...	27,560:	38,400:	+200:	- -	c/ -3,000:	35,600
5	450 New and industrially useful products: from sucrose and sucrose-containing materials .....	2,459:	25,050:	+450:	- -	- -	25,500
5	87 Study of chemical, physical, and biochemical properties of apiary products .....	12,225:	27,200:	- -	- -	- -	27,200

(Continued on next page)

Finan- cial Project No.	RWA Project No.	Project Title	1949	1950 (esti- mated)	Adjustments for 1951 P.L. 429: Contract: Other	1951 (esti- mated)
		Section 10(a) Utilization research:				
5	129	Investigations of tannin and devel- opment of new tanning materials ..	62,872	71,200	+600	71,800
5	132	Processing nicotiana rustica as a source of nicotine .....	20,715	21,550	+ 50	21,600
5	1452	Improvement of quality and flavor of maple syrup and other maple products .....	25,768	22,350	+ 50	22,400
6	440	Improvement of microbial quality of eggs, egg products, poultry and poultry products .....	7,329	32,200	+100	15,300
6	112	To develop new methods of preparing and processing cooked poultry meats .....	39,862	42,600	+300	42,900
6	343	Development of improved dried egg powders and dried egg mixes .....	22,311	32,300	+200	22,500
6	113	Disposal of dairy wastes .....	20,844	25,400	+200	25,600
6	200	Utilization of wool grease and other wool byproducts .....	39,828	40,950	+450	41,400
6	506	Production of amino acids from milk proteins .....	--	21,600	+100	21,700



Finan- cial Project :Project: No. : No.	Project Title	1949	1950 (esti- mated)	Adjustments for 1951 :P.L.429:Contract:Other : (esti- mated)	1951 (esti- mated)
<u>Section 10(a) Utilization research:</u>					
1, 3 & 4: 145	Production of antibiotics from agri- cultural sources .....	65,649	72,300	+500	72,800
1, 3 & 4: 272	Production of plant growth regulating compounds from agricultural sources.	14,670	17,250	+150	17,400
3 & 6: 401	Preparation of precooked frozen foods and the possible occurrence and sig- nificance of pathogenic organisms in frozen foods .....	19,072	27,400	+200	27,600
	Total, Section 10(a) .....	1,753,103	2,683,100	+35,300	+67,000
	Section 10(b) Research other than utilization;				
5: 72	Toxological effects of insecticides, fungicides, and herbicides on plants and animals .....	- -	20,400	+200	20,600
	Total, RMA .....	1,753,103	2,703,500	+35,500	+67,000
<u>Special Research Projects</u>					
1, 2 & 3:SRF-2-10	Investigation of the allergens of agricultural products .....	38,546	43,600	+300	43,900
1:" 2-120:	Investigation of the chemical mechanism of action of synthetic plant growth regulators by studying the specific reactions between the growth regula- tors and plant metabolites .....	8,341	- -	- -	- -

Finan- cial Project: No.	RMA Project: No.	Project Title	1949	1950 (esti- mated)	Contract	Other	1951 (esti- mated)
3	SRF 2-111	Effect of high pressures on enzymes of agricultural products	3,182	--	--	--	--
6	" 2-110	Immunological and chemical investi- gations on allergens of Johnin and tuberculin	11,327	12,200 + 200	--	--	12,400
		Total, Special Research Fund	61,396	55,800 + 500	--	--	56,300

- (a) An adjustment of \$1,000 under project 125, "New and improved uses of deciduous fruits especially to prevent wastes", to reflect a minor reduction in the work of this project.
- (b) The provision of \$13,500 under project 501, "Tung meal utilization investigations", to initiate work on the development of new products and uses for tung oil and byproducts.
- Objective: To develop new and more valuable products and market outlets for tung press cake and meal.
- Problem: Agronomically, tung culture is a young but established crop. Economically it is confronted with the severe competition from tung oil produced in the Orient as well as other oils such as soybean and dehydrated castor oils. To improve the economic position of domestic tung culture it is necessary to develop market outlets for tung byproducts particularly hulls, press cake and meal to offset declining returns for tung oil. In the past, tung byproducts, because of their toxic character, were used only as a mulch and fertilizer. Research on removal of toxic principles and industrial use of tung nut problems may lead to greatly increased gross and net returns to tung oil producers.
- Work: To remove or inactivate toxic principles; to isolate and characterize tung meal proteins, to evaluate proteins or refined meal for possible use in the production of adhesives paper and textile sizes, paper coatings, water-emulsion paints, etc.
- (c) An adjustment of \$3,000 under project 373, "Sugar technology investigations", to reflect a reduction for non-recurring expenses incurred in the purchase of an experimental sugar-cane mill used in work on the project.



## CHANGES IN LANGUAGE

The estimates include proposed changes in the language as follows (previous language enclosed in brackets, new language underscored):

### [SALARIES AND EXPENSES]

[For expenses necessary for investigations, experiments, and demonstrations hereinafter authorized, including not to exceed \$243,000 for personal services in the District of Columbia, as follows:]

[Agricultural chemical and naval stores investigations: For conducting the investigations contemplated by the Act of May 15, 1862 (5 U.S.C. 511, 512), relating to the application of chemistry to agriculture; for the biological, chemical, physical, microscopical, and technological investigation of foods, feeds, drugs, plant and animal products, and substances used in the manufacture thereof; for investigations of the physiological effects and for the pharmacological testing of such products and of insecticides; for the investigation and development of methods for the manufacture of sugars, sugar sirups, and starches and the utilization of new agricultural materials for such purposes; and for the technological investigation of the utilization of fruits and vegetables and for frozen-pack investigations; for the investigation of naval stores (turpentine and rosin) and their components; for the investigation and experimental demonstration of improved equipment, methods, or processes of preparing naval stores; and the weighing, storing, handling, transportation, and utilization of naval stores; \$645,525.]

[Regional research laboratories: For continuing the researches established under the provisions of section 202 (a) to 202 (e), inclusive, of Title II of the Agricultural Adjustment Act of 1938 (7 U.S.C. 1292), including research on food products of farm commodities, \$5,016,000.]

1 Salaries and expenses: For expenses necessary for investigations, experiments, and demonstrations established under the provisions of section 202 (a) to 202 (e), inclusive, of title II of the Agricultural Adjustment Act of 1938 (7 U.S.C. 1292); for the development of new and extended food, feed, and industrial uses for agricultural commodities, both plant and animal, and potential replacement crops, and processing, biological, chemical, physical, pharmacological, toxicological, and technological investigations thereof, including personal services in the District of Columbia, \$5,807,000: Provided, That not to exceed \$25,000 shall be available for the alteration to buildings of the Naval Stores Station at Olustee, Florida.

The first change in language proposes the deletion of the language under the subappropriations "Agricultural Chemical and Naval Stores Investigations" and "Regional Research Laboratories" and the consolidation of these items into a single main head appropriation "Salaries and Expenses, Agricultural and Industrial Chemistry, Agricultural Research Administration." This consolidation is proposed for the sole purpose of simplifying the appropriation structure and administration of the Bureau, and will in no way affect the nature or scope of the research work being conducted. In the interests of simplifying the administrative and accounting work of the Bureau, the monetary limitation on expenditures for personal services at the headquarters office has not been carried into the new language. No change is planned in the over-all distribution of personnel between the field and Washington.

The second change is proposed to include authority for the alteration of the buildings of the Naval Stores Station at Olustee, Florida required incident to the proposed transfer of personnel of the Naval Stores Research Division from New Orleans, Louisiana, to Olustee, Florida. This proposed transfer of 17 members of the staff of the Naval Stores Division from New Orleans, Louisiana, to Olustee, Florida, would make available much needed laboratory space at the Southern Laboratory, and at the same time offer many advantages to the work of the Naval Stores Division. The closer integration of the fundamental research with the developmental work would be of material benefit to both, and the planning and administration of the total program will be improved. Furthermore, the location of the entire staff of this Division in the area of the Naval Stores Industry would be valuable to the staff and to the industry with which they work in close cooperation.



## STATUS OF PROGRAM

Current Activities: The Bureau of Agricultural and Industrial Chemistry conducts investigations and experiments in the fields of chemistry and related physical sciences, technology, and chemical engineering on problems related to the conservation and industrial utilization of agricultural commodities, residues, and wastes for foods, feeds, drugs, and nonedible products. Four large Regional Research Laboratories and 15 other smaller field units are directed by a small headquarters staff located in Washington, D. C.

The Regional Research Laboratories are working to develop new and expand industrial and food uses for the principal farm commodities of their respective regions:

Southern Laboratory  
New Orleans, Louisiana

Cotton, peanuts and other  
oil seeds, and sweetpotatoes.

Western Laboratory  
Albany, California

Fruits, vegetables, poultry  
products, alfalfa, and  
wheat.

Eastern Laboratory  
Wyndmoor, Pennsylvania

Apples and other fruits,  
vegetables, potatoes,  
tobacco, milk products,  
animal skins, hides and  
tanning materials, animal  
fats and oils.

Northern Laboratory  
Peoria, Illinois

Corn, wheat, and other  
cereals, such as oats, rye  
and barley, soybeans and  
other oilseeds, and agri-  
cultural residues.

In other Bureau units applied research is being directed toward the problems of utilizing the products and byproducts of pine gum, tung nuts, sugar plants, citrus and other fruits, and vegetables. Fundamental research is conducted on the nature and control of enzyme action, on the toxic and other physiological effects of substances that might be considered for medicinal uses or that contaminate or exist in foods and feeds, on substances that exhibit special biological activity in or toward plants, and on the survival of pathogenic microorganisms in processed foods.

Specific problems to which efforts are now being directed are:

1. Control of bacteria and other microorganisms in the production of frozen citrus concentrates and juices is vital to this fast-growing industry. Microbiological investigations made in cooperation with Florida and California citrus processors have already proved invaluable in maintaining high quality in these unpasteurized



products and will be continued until the problem is solved. The fact that Florida producers expect to market about 20,000,000 gallons of frozen concentrated orange juice next season indicates the importance of these investigations. The orange-juice concentrate was originally developed by the Bureau in cooperation with the Florida Citrus Commission.

2. Tung oil with better drying properties for use in paints and varnishes is the goal of work recently undertaken on this increasingly important commodity. Improvement of the oil's drying characteristics is the major problem now facing the tung-oil industry. Bureau research is seeking the answer through chemical and physical modification of the oil.
3. Investigations are underway to produce frozen purees from Florida citrus fruit by adapting to Florida conditions the process developed by the Bureau and commercialized in California. An excellent product is had with Florida oranges. Lime purees tend to develop unattractive bitter flavors and intensive effort is being directed toward solution of this problem.
4. The egg processing industry needs a practical method of controlled fermentation to remove sugars that interfere with the preparation of high-quality egg white for food and industrial use. The Bureau has discovered that certain microorganisms will complete the fermentation of egg white within a few hours. The Bureau is continuing investigations to perfect the use of this fermentation process for commercial-scale operations.
5. Chemical modification of cotton fiber to produce fibers having new properties offers a promising means for developing expanded outlets for cotton - long an urgent problem in the South. Basic research data furnished by the Bureau has made it possible for a commercial finishing plant to produce one of these chemically modified cotton fabrics (carboxymethylated cotton) on a pilot plant scale. The Bureau is conducting further research on the modified fabric produced by this plant to explore potential uses. The speedier absorption of water makes this fabric attractive for toweling.
6. Since the development of better water resistance in cotton fabrics for outer garments will expand outlets for cotton, several phases of the Bureau's cotton research program are directed toward this end. Last year the weaving of denser fabrics for this purpose, using a special loom attachment, was reported. Sample fabrics of this type are being manufactured for commercial evaluation. A more recent contribution is the development of an improved method for measuring water repellency of fabrics -- an indispensable tool for industry and research investigations.
7. In current textile mill practices, maximum use of the inherently good qualities of the cotton fiber is not achieved because of a lack of fundamental knowledge concerning the relationships between fiber, yarn and fabric properties. The Bureau is attacking this

broad problem systematically, the recent demonstration of the effect of variation in one of these properties, namely, fiber fineness, on yarn quality, representing a significant first step in its solution.

8. One of the factors which has limited general industrial use of the protein of cottonseed meal has been the undesirable color of this product. A process is being developed by which light-colored protein can be separated from cottonseed meal, promising new opportunities for industrial utilization of cottonseed.
9. If frozen turkeys could be kept successfully in frozen storage for periods a little in excess of a year, orderly marketing of the birds would be facilitated substantially. The development of rancidity generally is the limiting factor in storage stability. Bureau research is disclosing that highly unsaturated fats in the finishing diet may affect stability adversely and that the same dietary constituents may contribute to the "fishy" flavors sometimes observed in fresh or processed turkeys.
10. In continuation of its investigations designed to improve the technology of preservation of fruits and vegetables by freezing, the Bureau has accumulated significant data on the immersion freezing of products packed in hermetically sealed containers. These indicate that substantial operating advantages may be possible through use of immersion freezing, and studies designed to establish its effect on product quality and to work out the engineering phases will follow.
11. Among midwest sweet corn processors, the removal of kernels damaged by corn borers constitutes a problem of immediate and increasing consequence. Studies designed to adapt to its solution the Bureau's successful froth flotation process developed for removing nightshade berries from Western grown peas are showing promise. Froth flotation is now in commercial use in the West for this purpose and has been adopted in the Midwest for removing foreign matter, including thistle bud, from peas.
12. Flavor principles are lost in the processing of various fruits to make jams, jellies, and preserves. Investigations are being conducted to apply the Bureau's successful process for producing flavor concentrates (essence) from apples to the production of flavor concentrates from the vapors now wasted in commercial preserve, jam, and jelly making. Perfection of such a process and reincorporation of the flavor concentrate thus obtained will greatly improve the quality of these food products.
13. Continuation of the Bureau's intensive research program on the utilization of agricultural residues (cereal straws, corn cobs, etc.) has resulted in the development of a new process hitherto unreported which promises to revolutionize current straw pulping methods. The new process consists of a mechano-chemical method of pulping straw for use in the manufacture of 9-point corrugating.



strawboard and for producing fine paper pulps from straw. This process is being further explored in cooperative research with the strawboard industry to improve quality and streamline operations. The process is also being explored cooperatively with equipment manufacturers for use in producing fine paper pulps.

14. The nutritive value of soybean meal, which is widely used as livestock feed, depends on variations in commercial soybean processing practices. Consequently, the development of a process for the production of a uniform soybean meal of maximum nutritive value is of importance to the industry. The Bureau now has well under way extensive investigations in close cooperation with industrial companies and Agricultural Experiment Stations to determine the effect of processing variables on the nutritive value of soybean meal, with the aim of establishing optimum processing procedures.
15. Citric acid, a widely used food ingredient, is made commercially by fermentation using a mold growing on the surface of a sugar containing solution. Operating advantages and lowered cost could be achieved if a practical method could be developed for conducting the fermentation in submerged culture, similar to the highly successful process developed by the Bureau for the commercial production of penicillin. The Bureau is directing its research toward the development of such a process.

#### Selected Examples of Recent Progress:

1. The demonstration that dates can be pasteurized in hermetically sealed containers without loss of quality, provided the can is filled with nitrogen gas, has led to the development of an improved method for preserving dates. The industry is very much interested since improvement in stability of the product is indicated.
2. Key to the production of industrial alcohol and other products of starch conversion from grain is the alpha-amylase of malt. This most important industrial enzyme has been produced in pure crystalline form, providing a new and powerful tool for the improvement of grain fermentation and for development of useful compounds from starch.
3. In testing new insecticides to see if they might be poisonous to man, it has been found that the diet of experimental animals used in such studies markedly affects the amount of toxic substance required to produce symptoms of poisoning. This discovery makes it possible to devise more reliable procedures for determining the toxicity of potentially dangerous materials.
- ✓ 4. Production of an apricot nectar as a new outlet for surplus and cull fruit is now being evaluated on a commercial scale.
5. Approximately one-third of the gum turpentine processors have requested aid from the Bureau in their processing operations and in each case help was given. In this way the Bureau is accumulating vital information which is of value in its research to develop further improvements in processing practices.



6. Widespread acceptance by industry has been accorded technical data developed by the Bureau on solvent extraction of oilseeds. These data point the way to proper design of equipment and better control of operations during the recovery of solvent from oil-solvent mixtures. They also enable mill men to keep color fixation in the oil to a minimum during the processing of cottonseed.
7. Winter-grown flaxseed is the basis for a new oilseed industry in the South. A major difficulty facing this industry is that normal weather conditions at harvest time often lead to production of moist seed, which tends to become heated in storage and does not keep as well as flaxseed stored in the North. The Bureau has developed a method for chemical treatment of flaxseed to reduce or prevent seed deterioration as a result of heating in storage. This process is being evaluated in cooperation with the industry.
8. Methods have been developed for the accurate determination of moisture in market-lot samples of peanuts. These methods have been collaboratively tested and adopted for general use in marketing and trading and in purchasing operations of the Production and Marketing Administration. The accurate determination of moisture in trade samples is most important in establishing equity to both buyer and seller.
9. As a prerequisite to the development of processing conditions which will result in alfalfa products of higher-nutritional value, a satisfactory procedure for measuring the vitamin A activity of alfalfa has been needed. A simple laboratory method for measuring this characteristic has been developed.
10. Dehydrofreezing, a previously-reported new process for the preservation of fruits and vegetables, has moved further toward commercial use as a result of recent work in the Bureau. Dehydrofrozen apricots have been shown to be equal or superior to frozen, canned, or dried apricots for pie making, with respect to flavor, texture, and color. Tests have also shown that dehydrofrozen apples are adaptable to standard baking pie-making practices. A patent has been issued on this process.
11. Although the production of dehydrated vegetables, in general, has slumped since the end of the war, the drying of carrots, chiefly for soup mixes, is still an industry of considerable importance. Investigations to improve the quality of dried carrots are being continued by the Bureau. It has been found that spraying diced, blanched carrots with a hot starch solution before dehydration results in a product that maintains its attractive color better and has better flavor than dehydrated carrots made in the usual manner. This process has been adopted by the dried carrot industry.
12. Studies on the production of volatile flavor concentrate (essence) from Concord grape juice have resulted in the development of a new two-stage process for the manufacture of an improved grape essence.

This new process may, after suitable modification, find wide application to other fruits and to vegetables.

13. Detailed chemical studies on vegetable leaf wastes have revealed that these farm products have considerable potential value as raw materials for the production of vitamin concentrates, chlorophyll, sterols and other pharmaceuticals. Commercial interest has developed during the past year, and one large pharmaceutical company is planning the production of phytol, a component of chlorophyll, from dried vegetable leaf wastes.
14. A process previously developed by the Bureau for the production of high-purity oleic acid has been successfully translated to pilot plant scale manufacture. Numerous samples of the pure oleic acids were furnished to industrial companies at their request. One company is now using the process and it appears that this development may greatly extend the utilization of inedible animal fats.
15. Commercial-scale tests of the previously described method of alum retanning of vegetable tanned leathers, developed by the Bureau for producing shrink-resistant leather, show that the process can be adapted to regular tannery practice without any material change in equipment.
16. Work on the development of a simple, easily controlled process for manufacturing high-grade insulating building board products from wheat straw has been completed. This development, an outgrowth of fundamental studies on the relationship of straw fiber characteristics to board properties, also points the way to other important new types of board products.
17. The increasing importance of grain sorghum as a source of starch and related products has led to studies of the effect of artificial drying on its wet milling characteristics. Cooperative investigations have shown that the grain is not damaged if its moisture content is not reduced below 12 to 13 percent. The practical application of this research will encourage the industrial utilization of grain sorghum.
18. The economical and efficient use of starch and starch-rich grains is often dependent upon the completeness and speed with which the starch is converted to sugars. An important contribution to the knowledge of the chemistry of starch saccharification has been realized in the preparation in pure form of isomaltose, a constituent of starch. The availability of this product will allow chemists to study for the first time the role played by isomaltose in the incomplete conversion of starch in industrial processes.
19. An important industrial use for rosin from pine gum is in the preparation of drying agents known as metallic resins for paints and varnishes. When these compounds are produced by ordinary methods they contain only small amounts of the metals customarily

used - - manganese, cobalt, and iron - - combined with resin acids. But the Bureau has developed new methods of modifying rosin which make it possible to produce resins containing increased amounts of metal and having paler color and improved solubility in oil which are more effective drying agents. Methods have also been worked out for the preparation of fused resins of metals such as titanium and vanadium, which were not previously available in soluble form.

(over)



STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS AND TRUST FUNDS  
(Amounts Shown Include Pay Adjustment Costs)

Item	Obligations, 1949	Estimated obligations, 1950	Estimated obligations, 1951
Research and Marketing Act of 1946:			
(Allotment to Bureau of Agricultural and Industrial Chemistry): (Title I, section 10a) Utilization research...	\$1,753,103	\$2,683,100	\$2,794,900
Section 10b Research other than Util- ization.....		20,400	20,600
Total, Research and Marketing Act	1,753,103	2,703,500	2,815,500
Research on Strategic and Critical Agricultural Materials, Department of Agriculture (Bureau of Agricul- tural and Industrial Chemistry):			
Investigations of improved methods for extracting and processing of rubber from guayule and other rubber: plants; on the storage of domestical- ly produced animal and vegetable oils, and on tannin extraction pro- cesses; and investigations to deter- mine the optimum conditions of stor- age of oil crops .....	176,287	127,000	261,000
Special Research Fund, Department of Agriculture (Bureau of Agricultural and Industrial Chemistry): Special Agricultural chemical researches of a fundamental nature .....	61,396	55,800	56,300
Synthetic Liquid Fuels, Transfer to Agriculture, (Bureau of Agricultural and Industrial Chemistry): Opera- tion of semi-works plants for stud- ies of production of liquid motor fuels from agricultural products (Transfer from Interior Department)	73,742	81,860	115,000
Miscellaneous Contributed Funds Department of Agriculture (Allotment: to Bureau of Agricultural and Indus- trial Chemistry)(Trust fund deposi- ted by cooperators) Cooperative re- search on grapefruit in Arizona and California and freezing preservation: of food products .....	108	1,691	-
TOTAL OBLIGATIONS UNDER ALLOTMENTS AND TRUST FUNDS .....	2,064,636	2,969,851	3,247,800

PASSENGER MOTOR VEHICLES

The estimates propose the replacement of one passenger motor vehicle at the Fruit and Vegetable Chemistry Laboratory, Pasadena, California at an estimated net cost of \$1,250. This vehicle will have an approximate mileage of 67,000 miles when traded in. The vehicle which is in unreliable mechanical condition, is used to transport laboratory and Bureau officials, collaborators, and other official visitors in connection with the research work of the Bureau on short inspection trips, etc., to nearby points and remote sections of Arizona and California not served by common carrier over all types of roads and terrain.





BUREAU OF HUMAN NUTRITION AND HOME ECONOMICS

Purpose Statement

The Bureau was established on July 1, 1923, absorbing the Office of Home Economics which had been in existence since 1914 as an enlargement of the Human Nutrition Investigations authorized by the Congress in 1894.

Research is carried on through laboratory and field studies in cooperation, wherever possible, with other bureaus of the Department, other Federal agencies, and with State research agencies, particularly State agricultural experiment stations. Studies include research on:

✓ Food and nutrition, to determine the nutritive contributions of different foods to the diet, the comparative costs of foods, the food and nutritional requirements of people, and how these facts can be applied by families in differing circumstances to the buying of food, the preparation of healthful meals, and the preservation and care of food in the home.

✓ Family economics, to determine the quantities of different foods and other goods and services consumed by families in various regional and economic groups; an evaluation of the economy and nutritional adequacy of diets and a study of the factors such as income, prices, and family size that affect family expenditures for living.

✓ Textiles and clothing, to determine the relative usefulness and cost of fabrics and garments differing in material, construction, design, and finish, for the purpose of developing specifications for products that better meet consumer needs, and of assisting consumers in their selection and care of fabrics, garments, and household textiles for various uses.

✓ Housing and household equipment, to determine the housing needs of families for efficiency and comfort, as a basis for developing plans for rural houses and for adequate and efficient work and storage centers, and to assist families with the selection, care, and use of household equipment.

Laboratory work is performed at the Agricultural Research Center, Beltsville, Maryland, and at twenty locations in cooperation with research institutions in the States. The staff employed on November 30, 1949, numbered 360, of whom 235 were located in the field.

	Budget	
	Estimated, 1950	estimate, 1951
Appropriated funds	\$909,200	\$1,370,500

General History

The first part of the book is devoted to a general history of the world, from the beginning of time to the present day. It covers the main events of world history, from the creation of the world to the present day.

The second part of the book is devoted to a general history of the United States, from the first settlement to the present day. It covers the main events of American history, from the first settlement to the present day.

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General History  
General History  
General History

General History  
General History  
General History

Salaries and Expenses

Appropriation Act, 1950 .....	\$853,200
Anticipated pay adjustment supplemental .....	15,500
Transfer, 1950, from "Salaries and expenses, Office of Information" ..	10,000
Activities transferred in 1951 Estimates from:	
"Salaries and expenses, Farm Housing, Department of Agriculture", for farm housing research .....	10,200
"Salaries and expenses, Marketing Services," marketing farm products, for coordinating nutrition services made available by Federal, State, and other agencies .....	30,300
Base for 1951 .....	919,200
Budget Estimate, 1951 .....	1,370,500
Increase .....	<u>451,300</u>

SUMMARY OF INCREASES AND DECREASES, 1951

To conduct a national survey of rural family living expenditures .....	4365,000
To replace worn-out and obsolete equipment .....	450,000
To assist in the development of farmhouse plans that are adequate from the standpoint of livability and operating efficiency, as a part of the Farm Housing Program .....	439,000
Decrease due to elimination of non-recurring transfer provided in the 1950 Agricultural Appropriation Act from "Salaries and expenses, Office of Information" for preparation of a nutrition handbook .....	-10,000
Increase necessary to place on a full-year basis in 1951, pay adjust- ments under P. L. 429 which were in effect for only a part of fiscal year 1950 .....	47,300

PROJECT STATEMENT

(Amounts Shown Include Pay Adjustment Costs)

Project	1949	1950 (estimated)	Increase or decrease P.L. 429 : adjustment:	Other	1951 (estimated)
1. Food and nutrition investigations .....	\$323,318	\$326,500	4\$2,200	4\$25,000(1)	\$353,700
2. Family economics investigations .....	292,811	293,000	43,000	4365,000(2)	661,000
3. Textiles and cloth- ing investigations ..	166,230	167,200	41,300	412,500(1)	181,000
4. Housing and house- hold equipment inves- tigations .....	114,992	122,500	4800	451,500(3)	174,800
Transfer from "Salaries and expenses, Office of Information" .....	- -	10,000	- -	-10,000(4)	- -
Total pay adjustment costs .....	[ - - ]	[ 16,000 ]	[ 47,300 ]	[ 416,000 ]	[ 39,300 ]
Unobligated balance ...	1,399	- -	- -	- -	- -
Total available .....	898,750	919,200	47,300(5)	444,000	1,370,500

(Continued on next page)



Project	1949	1950 (estimated)	Increase or decrease P.L. 429 adjustment	1951 (estimated) Other
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture"		7,874		
Transfer in 1950 estimates from "Printing and binding, Department of Agriculture"		-24,117		
Transfer in 1951 estimates from:				
"Salaries and expenses, marketing services," marketing farm products		-24,507	-30,300	
"Salaries and expenses, Farm Housing, Department of Agriculture"		- -	-10,200	
Transfer from "Salaries and expenses, Office of Information"		- -	-10,000	
Anticipated pay adjustment supplemental		- -	-15,500	
Total estimate or appropriation		858,000	853,200	

#### INCREASES OR DECREASES

The increase of \$451,300 in this item for 1951 is composed of the following:

(1) Increases totaling \$37,500 under Projects 1 and 3 and \$12,500 under Project 4 to replace worn-out and obsolete equipment and to acquire additional modern units.

Inability to replace equipment at a normal rate during the war, and consequent high costs for repair and maintenance, as well as obsolescence, necessitates larger than usual purchases of equipment in 1951. The proposed increase would enable the Bureau to acquire the desired pieces, including some of the more modern equipment needed for research making use of radioactive isotopes, electronics, and special photography, thus resulting in a more effective research program.

Items of equipment proposed for purchase and the purpose for which needed in the conduct of research work is as follows:

Project 1. Food and nutrition investigations:

<u>Item</u>	<u>Purpose</u>	<u>Estimated Cost</u>
Electronic microscope .....	For high magnification to identify physico-chemical characteristics of foods and of tissues of experimental animals.	\$5,700
Polarimeter .....	For rapid precise determination of chemical constituents of foods and tissues of experimental animals.	1,600
Portable x-ray unit .....	To determine the characteristics of living tissues of human subjects and experimental animals.	1,200
Equipment for laboratory for radioactive isotope work with C-14, P-32, and S-35 (This includes small lead-lined chambers, assay dishes, Geiger-Mueller automatic scorer, remote control instruments, and survey monitor instruments for checking decontamination.)	To study absorption, utilization and storage of the essential nutrients containing carbon, phosphorus and sulfur.	6,000
Equipment for metabolic laboratory for human subjects (This would include arrangements for controlled feeding and collection of metabolic materials, basal metabolism apparatus; vacuum-type dehydrators; and freezing cabinets.)	To supplement present incomplete facilities, which would make for more economical and efficient operation	5,000
Mano-metric apparatus for micro-respiration studies (Warburg) .....	To measure oxygen consumption of tissues of experimental animals on different diets.	1,500
Recording potentiometer (16-point) .....	To make continuous records of temperatures in food preparation and preservation research.	1,500
Sub-zero storage cabinet ....	To prevent losses of nutrients and palatability in samples of foods or biological materials.	2,500
	Total .....	<u>25,000</u>



Project 3. Textiles and clothing investigations.

<u>Item</u>	<u>Purpose</u>	<u>Estimated Cost</u>
Abrasion testing machine (Schiefer) .....	For uniform abrasion determinations from every azimuthal direction of the specimen.	\$1,300
Gonio-photometer .....	For measuring glossiness of textile surfaces using light at different angles.	2,000
Cooling tower .....	To avoid waste of water in air conditioning and reduce cost.	2,000
Thwing-Albert electro-hydraulic tensile strength tester	For breaking strength tests--permits wide range of capacities and speeds with low frictional losses.	3,500
Spence phase microscope .....	For studying textile fibers and living microorganisms.	1,500
Gram-atic balance .....	For weighing samples under constant load.	1,000
Constant temperature water bath .....	For determination of alkali solubility of wool.	750
Forced draft oven .....	For drying samples quickly at low temperatures.	450
Total .....		12,500

Project 4. Housing and household equipment investigations.

<u>Item</u>	<u>Purpose</u>	<u>Estimated Cost</u>
Adjustable prefabricated panels for research in house design .....	To be used in setting up houses of different sizes and arrangements.	7,700
"Radar" cooking range .....	For studying operating characteristics and its performance in use.	3,500
Color and color-difference meter .....	To establish standards for performance of electric range ovens, laundry equipment, etc.	1,300
Total .....		12,500

(2) Increase of \$365,000 under the project "Family economics investigations" to conduct a national survey of rural family living expenditures.

Problem and Need for the Work: Information concerning rural expenditures for family living is needed among other purposes, for determining trends in consumption, estimating market potentials, evaluating changes in the welfare of rural families, and for planning educational and other programs to assist in improving levels of living.



The family living expenditures information to be collected by the Bureau of Human Nutrition and Home Economics would, in conjunction with the gathering of production expenditure data for which an increase is proposed in the estimates for the Bureau of Agricultural Economics, comprise the rural counterpart of a similar survey for the urban population planned by the Bureau of Labor Statistics of the Department of Labor. As in the Consumer Purchases Study (1935-36) and the Survey of Spending and Saving in Wartime (1941-42), parallel data for urban and rural families should be obtained, permitting estimates for the population as a whole.

Data from the last national survey of this kind made in 1942 have been very useful to many groups--producers and processors of agricultural products, other business men, economists, educators, and welfare agencies. New and up-to-date figures are now greatly needed, however, in view of changes in income and price level, migration of the population among the States and from farm to city, decrease in average family size, numerous technological developments in consumer goods and changed methods of marketing.

Data from families themselves are needed periodically to determine the distribution of expenditures for living among families by income, size of family, and place of residence (rural-urban), to supplement the figures concerning aggregate consumer expenditures in the United States published annually by the Department of Commerce.

The data will have another important use--that of providing the Bureau of Agricultural Economics with up-to-date weights for its index of prices paid by farmers for family living. National figures are needed for this purpose, in sufficient quantity to provide reliable detail on individual items of consumption.

The study would be planned so that in addition to providing national estimates of consumption, data would be available for five selected areas, spaced far apart geographically. A survey of these five "spots" would permit more intensive analysis of income-expenditure relationships and would throw considerable light on place-to-place differences in consumption and provide a comparison with data for urban families in nearby cities.

Objectives: (1) To determine the amount purchased and expenditures for commodities and services used by rural families in the country as a whole, and factors affecting them such as family income, savings, place of residence, family size, home-produced food, etc.

(2) For rural farm families living in five selected rural areas, to determine the amount of consumption goods and services purchased and the expenditures for them and factors related to family expenditures such as family income, savings, place of residence, family size, home-produced food, etc.

2600 p. 1000 p. 1000 p.

Data to be Collected for Analysis: Money expenditures for food, housing, household operation, furnishings and equipment, clothing, automobile, other transportation, personal care, medical care, recreation, tobacco, reading, formal education, miscellaneous family expense, gifts and welfare, personal taxes. Value of home-produced or farm-furnished food, fuel, housing, value of clothing, furniture, other items received without direct expenditure also would be covered.

Tabulation would be by major consumption commodity or service, with subdivisions by income and family size. Data for the farm operators would be analyzed separately from data for rural nonfarm families. A division of the rural nonfarm group by open country and village residence may prove desirable.

Coverage of Survey: All families living in rural areas, both open country and villages with a population less than 2,500 would be included.

Sample Size: A sample of 7,500-10,000 families is planned, depending upon the detail to be collected and the extent to which subsamples are used for part of the data. These details would be decided upon in consultation with the Bureau of Agricultural Economics, The Bureau of Labor Statistics, the Budget Bureau Division of Statistical Standards, and other government agencies. The sample design would need to be worked out carefully to insure, through random selection, an adequate sample from both the rural farm and rural nonfarm population and to provide adequate numbers for a more intensive analysis of data collected from the five selected rural areas.

(3) Increase of \$51,500 under the project "Housing and household equipment investigations" composed of:

(a) Increase of \$39,000 for the development of adequate farmhouse plans from the standpoint of livability and operating efficiency, as an integral part of the Farm Housing Program under Title V of the Housing Act of 1949.

Objective: To establish space requirements and arrangements of farm homes in order to provide information essential to the preparation of plans for satisfactory houses, primarily in the low-cost range.

Problem and its significance: Reductions in the cost of housing frequently are obtained by merely reducing the space that has usually been provided in the plans for medium and high cost houses, with little attention being given to comfort, convenience and livability. Studies are needed of the minimum space required by low-income families for the every day living activities.

There is also need for study of space arrangements and designs for storage and other details for low-cost houses which will permit dual use of the same area for several activities. Almost no research has been done on the development of such arrangements and designs within space limitations.



Plan of Work: Development of functional requirements for low-cost houses: The minimum requirements for space and its efficient arrangement for carrying on household activities in low-cost farm-houses would be determined. This would be based upon the results of a field study on farm family needs and preferences which is now nearing completion. Experimental work areas, rooms and arrangements of rooms would be set up. The type of activities carried on by low-income families would be studied in these areas and the minimum space requirements and the most efficient arrangement for built-in and installed equipment determined for each activity. Studies would also be made of the interrelation of activities as they affect space requirements. In an effort to decrease housing costs, special attention would be given to the dual use of space without impairing efficiency and livability.

Development of house plans for farmhouses: In cooperation with the Bureau of Plant Industry, Soils, and Agricultural Engineering and several State Experiment Stations, approximately 60 farmhouse plans would be developed during 1951. These would incorporate the findings from the field study of farm family needs and preferences now being conducted by the Bureau of Human Nutrition and Home Economics in cooperation with the State Experiment Stations, and the results of the research program outlined in 1. above as they become available.

(b) Increase of \$12,500 to replace worn-out and obsolete equipment.  
See explanation under Item (1).

(4) Decrease of \$10,000 due to elimination of non-recurring transfer provided in the 1950 Agricultural Appropriation Act from "Salaries and expenses, Office of Information" for preparation of a nutrition handbook.

(5) Increase of \$7,300 to place on a full-year basis in 1951 pay adjustments under P. L. 429 which were in effect for only a part of the fiscal year 1950.



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Alternate Project Statement

Project	1949	1950	: Increase : :(+) or : Estimated: Decrease : : (-)	1951	1951			Special:
					Estimated:	Section:	Section:	
					10(a)	10(b)	Total	Research: Grand
								Fund : Total
1. Food and nutrition investigations .....	323,318	326,500	427,200	353,700	449,500	-	449,500	33,000: 836,200
2. Family economics investigations .....	292,811	293,000	4368,000	661,000	154,700	8,300	163,000	- : 824,000
3. Textiles and clothing investigations .....	166,230	167,200	413,800	181,000	113,800	-	113,800	- : 294,800
4. Housing and household equipment investigations .....	114,992	122,500	452,300	174,800	20,500	66,900	87,400	- : 262,200
5. Transferred from "Salaries and expenses, Office of Information, Department of Agriculture" .....	-	10,000	-10,000	-	-	-	-	- : -
6. Pay adjustment costs .....	-	16,000	423,300	39,300	17,600	2,200	19,800	1,000: 60,100
Unobligated balance .....	1,399	-	-	-	-	-	-	- : -
Total available .....	898,750	919,200	4451,300	1,370,500	738,500	75,200	813,700	33,000: 2,217,200
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture" .....	47,874	-	-	-	-	-	-	- : -
Transfer in 1950 estimates from: "Printing and binding, Department of Agriculture" .....	-24,117	-	-	-	-	-	-	- : -
Transfer in 1951 estimates from: "Salaries and expenses, marketing services," marketing farm products .....	-24,507	-30,300	-	-	-	-	-	- : -
"Salaries and expenses, Farm Housing, Department of Agriculture" .....	-	-10,200	-	-	-	-	-	- : -

(Continued on next page)

Project	1949	1950	Increase :(/) or :Estimated:Decrease :(-)	1951			Grand Total
				Estimated	Section:10(a)	Section:10(b)	
Transferred from "Salaries and							
expenses, Office of Informa-							
tion, Department of Agricul-							
ture" .....	-	-10,000:					
Anticipated pay adjustment							
supplemental .....	-	-15,500:					
Total estimate or appropriation:	858,000:	853,200:					

# RMA Projects

Finan- cial Project:	RMA Project:	Project Title	1949	1950 estimated:	Adjustments for 1951		1951 estimated
No.	No.				P.L. 429: Contract:	Other	
		Section 10(a) Utilization					
		research:					
1	103	Improvement in methods of cottonseed oil extraction, and development of new and improved products from cotton- seed and their evaluation ....	4,913	10,200	\$100	-	10,300
1	147	Predetermining and evaluating: the cooking quality of potatoes .....	15,373	15,300	\$200	-	15,500
1	11	Human nutritional require- ments of population groups as indicated by nutritional status in relation to food intake .....	164,335	146,200	\$800	\$30,000	177,000
1	12	Greater utilization of foods for which an expanded market is needed, with emphasis on improved household use .....	103,032	168,000	\$1,600	-40,000	129,600
1	345	Distribution of recently identified nutrients in food.	30,957	136,400	\$700	-50,000	87,100
1	601	Physiological utilization of nutrients from various food sources .....	-	-	-	\$30,000	30,000

(Continued on next page)



Finan- cial Project: No.	RMA Project: No.	Project Title	1949	1950 estimated:	Adjustment for 1951		1951 estimated
					P.L. 429	Contract	
		Section 10(a) Utilization					
		research - Continued					
2	341	Present and potential family utilization of clothing and household textiles .....	24,402	25,400	\$300	-	25,700
2	13	Potential utilization of foods as indicated by current dietary habits of families in the United States .....	116,585	127,500	\$1,500	-	129,000
3	427	Developing and evaluating fabrics containing wool of known source and genetic origin .....	40,320	41,700	\$400	-	42,100
3	9	Serviceability studies for the evaluation for family uses of clothing and house- hold fabrics composed of cotton and other fibers .....	69,183	71,100	\$600	-	71,700
4	308	Determination of requirements and development of plans and specifications for facilities for freezing and storing per- ishable foods on farms for marketing and home consumption	14,528	20,300	\$200	-	20,500
		Total, Section 10(a) .....	583,628	762,100	\$6,400	-30,000	738,500

(Continued on next page)

Finan- cial Project: No.	RMA Project: No.	Project Title	1949	1950 estimated	Adjustment for 1951			1951 estimated
					P.L. 429	Contract	Other	
		Section 10(b) Research other than utilization:						
2	165	Regional marketing research on fruits and vegetables (other than citrus and potatoes)	2,684	3,400	-	-	-300(a)	3,100
2	174	Regional marketing research on potatoes	4,939	5,100	4100	-	-	5,200
4	14	Determination of space and facility needs in farm houses	51,537	52,700	4500	-	4300(a)	53,500
4	138	Use of electricity on farms	-	13,300	4100	-	-	13,400
		Total, Section 10(b)	59,160	74,500	4700	-	-	75,200
		Total, RMA	642,788	836,600	7,100	-30,000	-	813,700

Special Research Projects

1	2-98	The effect upon growth and health of the proportion of egg in the diet	12,695	14,200	4100	-	-	14,300
1	2-112	Comparative study of chemical and biological methods of determining ascorbic acid	10,482	-	-	-	-	-
1	2-113	The role of the breakfast meal in the metabolism of carbohydrate and thiamine	5,964	-	-	-	-	-

(Continued on next page)

Finan- cial Project: No.	RMA Project: No.	Project Title	1949	1950 estimated:	Adjustments for 1951	1951 estimated
					P.L. 429: Contract: Other	
Special Research Projects - Continued						
1	2-126	The effect of diets high in egg on the histological struc- ture of the liver, kidney, lung, and heart of rats fed these diets throughout life ...	-	18,400:	-	18,700
		Total, Special Research Fund ...	29,141:	32,600:	-	33,000

(a) An adjustment of \$300 between project 14, "Determination of space and facility needs in farm houses" and project 165 "Regional marketing research on fruits and vegetables (other than citrus and potatoes)", under Section 10(b), due to a minor redistribution of personal service costs incident to cooperative work.



## CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

Salaries and expenses: For necessary expenses, including not to exceed / \$343,550 / \$455,000 for personal services in the District of Columbia, for conducting investigations of the relative utility and economy of agricultural products for food, clothing, and other uses in the home, with special suggestions of plans and methods for the more effective utilization of such

- 1 products for these purposes, and such economic and technical investigations, including housing and household buying, as have
- 2 for their purpose the improvement of the rural and urban home,
- 3 for coordinating nutrition services made available by Federal, State, and other agencies, and for disseminating useful informa-
- 4 tion on / this subject, \$853,200 / these subjects, \$1,370,500.

The first change in language, inserting the phrase "and technical", is proposed to indicate more accurately the scope of the activity being financed. Many of the studies to improve the home are concerned with management problems that have technical as well as economic aspects.

The second change in language is proposed to add the words "and urban" as the urban population is increasingly the market for agricultural products, and research into nutrition and home economics is of concern to all families, both rural and urban.

The third and fourth changes in language, inserting the phrase "for coordinating nutrition services made available by Federal, State, and other agencies" and changing the words "this subject" to "these subjects", are proposed to provide authority under this item for the coordination of nutrition services in accordance with the transfer of this function from "Marketing Services, Marketing farm products" in 1950 pursuant to Secretary of Agriculture's Memorandum No. 1239. This change has been reflected as a transfer in the estimates for 1951.

## STATUS OF PROGRAM

Current Activities: The Research work of the Bureau of Human Nutrition and Home Economics consists of both laboratory and field investigations, many in cooperation with other bureaus of the Department, other Federal agencies, and State organizations. It includes:

1. Food and Nutrition: Determining the nutritive requirements of people; the composition and nutritive value of food to meet these needs; the best use of agricultural products, including food selection, care of food in the home, and the most suitable methods of home food preparation and preservation.

Current research includes study of the food-energy requirements of children; the digestibility, physiological energy-value and vitamin A value of selected foods; and bacteriological and other technical problems of processing and packaging to improve techniques of home food preservation through freezing.

2. Family Economics: Investigating problems of household buying, and the adequacy and relative economy of the food, clothing and other goods and services that are consumed by various population groups, particularly the major items of household expenditure which serve as indicators of farm family living standards.

Special study is being given to expenditures for family living as affected by income, family size, environment and other factors. The nutrient content of our national food supplies is appraised periodically; available data are being compiled and evaluated on the composition of foods as marketed and as eaten; and food budgets developed for institutional groups.

3. Textiles and Clothing: Emphasizing studies to assist homemakers with the selection, use and care of family clothing and to help producers in the development of fibers, fabrics and garments for specific consumer uses.

Work is in progress on technical problems pertaining to consumer use and the quality of clothing and household textile articles, and on problems of design and sizing in relation to their use. Research on the causes of deterioration of fabrics during use are continuing, with attention being given to the relative efficiency of various household detergents in their reconditioning.

4. Housing and Household Equipment: Involving studies of the housing needs of families and development of plans for rural houses with efficient work areas, adequate storage space, and arrangements for satisfying family living; and research to improve the selection of household equipment.

House plans are being developed this year for the Southern Regional Plan Exchange Service, in cooperation with State agricultural colleges of the region. Practical designs are being developed for sewing centers and for kitchen storage facilities. Also underway are studies of the operating characteristics of home laundry equipment.



Selected Examples of Recent Progress. Following are examples of progress in these fields during the past year.

1. Diets of groups of rural families. Studies in an Ohio and a Georgia county in each of which the economic level was somewhat below regional averages, showed that even in a year when the national income and the country's total food consumption were fairly high, all families were not well fed. In the Georgia county, diets of only 3/10 of the families studied, and in the Ohio county 4/10, provided in full the recommended dietary allowances of the National Research Council. Families achieved improved diets with successively higher per capita income levels, but at no income level did diets of all families meet the recommended allowances in full. In both the highest and the lowest income groups nutrients most likely to be short were vitamin A value, calcium and ascorbic acid.
2. Methods for determining amino acids. A new bulletin prepared for easy reference contains the results of Bureau research on methods for quantitatively determining 10 nutritionally essential amino acids and applying these methods to food analysis. Figures included give the amounts of these substances in 15 proteins and 16 foods.
3. Summary of research in home dehydration of vegetables and fruits. A comprehensive technical report prepared this year puts into permanent form for research workers the results of Bureau studies to find ways of improving flavor, texture, color and nutritive value of home dehydrated vegetables and fruit. Factors affecting quality, ascorbic acid content and cost of processing had been investigated, as well as methods of pretreatment, dehydration temperatures, storage, reconstitution and preparation of the dehydrated food for the table. The findings had been used earlier in popular publications for wartime food conservation programs.
4. Freezing and canning compared as methods of home preservation of snap beans. Home frozen snap beans were found superior to home canned both in palatability and nutritive value, using parallel samples from four successive plantings of Fulcrop snap beans, a full-podded stringless variety recently developed by the Bureau of Plant Industry, Soils, and Agricultural Engineering. Compared at intervals during a 10-months controlled temperature storage, the frozen beans were superior to the canned in appearance, color and palatability. Prepared for the table after a 10-months period, the frozen samples retained 76 percent of the thiamine and 29 percent of the ascorbic acid of the fresh, raw product; the canned beans retained 71 percent of the thiamine and 15 percent of the ascorbic acid.
5. Properties of knit fabrics as affected by construction. Research on plated knit fabrics has shown that by varying the construction and yarn combinations, new properties can be developed in fabrics which increase their usefulness for specific consumer purposes. It was found that the properties of yarns are not always reflected in those of the finished fabric. This is marked in the case of



elastic recovery (recoverable stretch) and creep (dimensional change under constant load), properties important to users of knit goods.

6. Comparative efficiency of household detergents. The number and variety of soaps and other detergents now on the retail market is confusing to homemakers since little information is given to them concerning the relative merits of these products for laundering and for other specific household uses. The potential soil-removing effectiveness of 15 soaps, one soap powder and 35 synthetic detergents for the home laundering of cotton has been determined recently by the Bureau and the results made available to homemakers, research workers and manufacturers of detergents through popular and technical publications.
7. Procedures for evaluating the performance of electric range ovens. Cooperating with a technical committee of the American Standards Association, test procedures have been standardized for appraising the performance of electric range ovens. Phases of this work included the standardization of recipes and mixing techniques for test products; specifications for utensils to be used; placement of products in the oven; time and temperature for baking; and the setting of limits within which characteristics such as color and symmetry must come if the baked products are to be considered acceptable.



BUREAU OF HUMAN NUTRITION AND HOME ECONOMICS

Functional Summary of RMA Projects Carried Out Under Title II

Functional Classification	1949	Adjustments for 1951			1951
		1950	P.L. 429	Other	
		estimated	Contract		estimated
MARKETING RESEARCH AND SERVICES					
II Expansion of outlets for farm products:					
c. Exploring opportunities for ex-					
panding domestic markets .....	-	10,300	7200	-	10,500





STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS  
(Amounts Shown Include Pay Adjustment Costs)

Item	: Obligations: 1949	: Estimated Obligations, 1950	: Estimated Obligations, 1951
<u>Administration of the National</u>	:	:	:
<u>School Lunch Act, Department of</u>	:	:	:
<u>Agriculture (Allotment to Bureau</u>	:	:	:
<u>of Human Nutrition and Home</u>	:	:	:
<u>Economics):</u>	:	:	:
Nutritional requirements of	:	:	:
school feeding programs .....	\$56,346:	\$27,350:	\$27,550
<u>Research and Marketing Act of 1946</u>	:	:	:
<u>Department of Agriculture (Allot-</u>	:	:	:
<u>ment to Bureau of Human Nutrition</u>	:	:	:
<u>and Home Economics):</u>	:	:	:
(Title I, Sec. 10a) Utilization	:	:	:
research .....	583,628:	762,100:	738,500
(Title I, Sec. 10b) Research other:	:	:	:
than utilization research .....	59,160:	74,500:	75,200
(Title II) Marketing research and	:	:	:
services .....	- - :	10,300:	10,500
Total .....	642,788:	846,900:	824,200
<u>Special Research Fund, Department</u>	:	:	:
<u>of Agriculture (Allotment to</u>	:	:	:
<u>Bureau of Human Nutrition and</u>	:	:	:
<u>Home Economics):</u>	:	:	:
For special research in nutrition	29,141:	32,600:	33,000
TOTAL, OBLIGATIONS UNDER ALLOTMENTS	728,275:	906,850:	884,750

1. GENERAL INFORMATION  
2. DESCRIPTION OF THE PROJECT

1. <u>GENERAL INFORMATION</u>			
1.1. <u>Project Name</u>			
1.2. <u>Project Number</u>			
1.3. <u>Project Location</u>			
1.4. <u>Project Period</u>			
1.5. <u>Project Budget</u>			
1.6. <u>Project Status</u>			
1.7. <u>Project Manager</u>			
1.8. <u>Project Sponsor</u>			
1.9. <u>Project Stakeholders</u>			
1.10. <u>Project Risks</u>			
1.11. <u>Project Benefits</u>			
1.12. <u>Project Objectives</u>			
1.13. <u>Project Deliverables</u>			
1.14. <u>Project Milestones</u>			
1.15. <u>Project Constraints</u>			
1.16. <u>Project Assumptions</u>			
1.17. <u>Project Dependencies</u>			
1.18. <u>Project Communication</u>			
1.19. <u>Project Reporting</u>			
1.20. <u>Project Evaluation</u>			
1.21. <u>Project Review</u>			
1.22. <u>Project Closure</u>			
1.23. <u>Project Archiving</u>			
1.24. <u>Project Handover</u>			
1.25. <u>Project Final Report</u>			
1.26. <u>Project Lessons Learned</u>			
1.27. <u>Project Best Practices</u>			
1.28. <u>Project Success Factors</u>			
1.29. <u>Project Challenges</u>			
1.30. <u>Project Opportunities</u>			
1.31. <u>Project Recommendations</u>			
1.32. <u>Project Conclusions</u>			
1.33. <u>Project Summary</u>			
1.34. <u>Project Appendix</u>			
1.35. <u>Project Glossary</u>			
1.36. <u>Project Acronyms</u>			
1.37. <u>Project References</u>			
1.38. <u>Project Bibliography</u>			
1.39. <u>Project Index</u>			
1.40. <u>Project Table of Contents</u>			
1.41. <u>Project Cover Page</u>			
1.42. <u>Project Title Page</u>			
1.43. <u>Project Executive Summary</u>			
1.44. <u>Project Introduction</u>			
1.45. <u>Project Background</u>			
1.46. <u>Project Justification</u>			
1.47. <u>Project Rationale</u>			
1.48. <u>Project Significance</u>			
1.49. <u>Project Impact</u>			
1.50. <u>Project Relevance</u>			
1.51. <u>Project Feasibility</u>			
1.52. <u>Project Viability</u>			
1.53. <u>Project Sustainability</u>			
1.54. <u>Project Scalability</u>			
1.55. <u>Project Flexibility</u>			
1.56. <u>Project Adaptability</u>			
1.57. <u>Project Resilience</u>			
1.58. <u>Project Robustness</u>			
1.59. <u>Project Reliability</u>			
1.60. <u>Project Consistency</u>			
1.61. <u>Project Accuracy</u>			
1.62. <u>Project Precision</u>			
1.63. <u>Project Validity</u>			
1.64. <u>Project Credibility</u>			
1.65. <u>Project Trustworthiness</u>			
1.66. <u>Project Integrity</u>			
1.67. <u>Project Honesty</u>			
1.68. <u>Project Transparency</u>			
1.69. <u>Project Accountability</u>			
1.70. <u>Project Responsibility</u>			
1.71. <u>Project Commitment</u>			
1.72. <u>Project Dedication</u>			
1.73. <u>Project Passion</u>			
1.74. <u>Project Enthusiasm</u>			
1.75. <u>Project Motivation</u>			
1.76. <u>Project Inspiration</u>			
1.77. <u>Project Creativity</u>			
1.78. <u>Project Innovation</u>			
1.79. <u>Project Originality</u>			
1.80. <u>Project Uniqueness</u>			
1.81. <u>Project Novelty</u>			
1.82. <u>Project Freshness</u>			
1.83. <u>Project Modernity</u>			
1.84. <u>Project Contemporary</u>			
1.85. <u>Project Current</u>			
1.86. <u>Project Up-to-date</u>			
1.87. <u>Project Relevant</u>			
1.88. <u>Project Timely</u>			
1.89. <u>Project Appropriate</u>			
1.90. <u>Project Suitable</u>			
1.91. <u>Project Proper</u>			
1.92. <u>Project Right</u>			
1.93. <u>Project Correct</u>			
1.94. <u>Project Accurate</u>			
1.95. <u>Project Precise</u>			
1.96. <u>Project Valid</u>			
1.97. <u>Project Credible</u>			
1.98. <u>Project Trustworthy</u>			
1.99. <u>Project Integrity</u>			
1.100. <u>Project Honesty</u>			





